

Canadian Railway and Marine World

August, 1916.

The Board of Railway Commissioners' Judgment in the Eastern Rates Case.

The Board of Railway Commissioners' judgment in the Eastern Rates Case which was promulgated July 6, sanctions increases in freight rates in Eastern Canada, but does not allow all the increases asked for. Each rate has been considered on its merits. Following is a summary: It was not until May 11 of this year that the increases in grain and grain products rates were withdrawn by the railways, after negotiations resulting from the Board being impressed by the effect of the short mileage of the National Transcontinental, and competitive conditions between that line and the Canadian Northern north of the Ottawa. This affects a large item.

Operating expenses have increased generally. While from 1899 to 1914 train mile earnings increased 89%, the cost of service per train mile increased 112%, notwithstanding economies attributable to increased locomotive power, lower grades, better loading and increased traffic. In the period 1910 to 1914, earnings increased 10.6%, expenses 17.7%. In 1915, earnings increased 5.3% expenses 12.4%. Railway ties cost 38% more in 1914 than in 1907; in 1915 they were 45% higher. The cost of fuel to operate 100 miles was 30% higher in 1914 and 1915 than in 1907. The average cost of fuel increased 21.8% in the period 1909 to 1914. Salaries and wages represent three-fifths of the total railway expenses. This item has increased rapidly. The wage bill of the Grand Trunk alone increased in the period 1909 to 1914 by 52%, and for 1915 the increase was 50%. The increase in labor cost is mainly due to increases in wages, as there have been economies in the number of men employed per 100 miles of track. Decreases in wages are not a feasible means of economizing. The wages on the Grand Trunk have increased by 4.3% since the hearing.

The Canadian Pacific divisions in Eastern Canada are the Atlantic, Eastern, Ontario and Lake Superior. The Atlantic Division is operated at a loss. There is but little local traffic on the Lake Superior Division. The Canadian Pacific and the Grand Trunk are both engaged in business in the Eastern and Ontario Divisions, and here the freight business of the Canadian Pacific gives only 20% of its total freight revenue, and represents only three-fifths of the business done by the Grand Trunk. The Grand Trunk was built to meet the needs of Eastern Canada. It runs into all the large producing centres; it has a well established and well worked up business. In Eastern Canada it does the largest business and obtains the greatest earnings.

It is fair to accept for primary consideration the actual results of the Grand Trunk's earnings as a basis of rates. The rates cannot be based on the total capital cost of the Grand Trunk as carried on the company's books, which would represent a cost of \$131,000 a mile. The Canadian Pacific's new lines from Glen Tay to Agincourt and from Toronto to Sudbury cost respectively \$71,000 and \$56,000 a mile. This includes nothing for terminals. The Intercolonial cost,

including equipment and terminals, \$75,000 a mile. The Hydro-Electric Power Commission of Ontario has recently made an estimate that 138 miles between Toronto and London would cost \$100,000 a mile, including terminals and equipment.

The net earnings per mile of line of the Grand Trunk at their highest in 1913 were \$3,500 a mile. In 1914, they were \$3,059, and in 1915 \$2,477. The financial relations of the Grand Trunk to the Grand Trunk Pacific, as well as to its United States lines, are analyzed, and it is rule that outside investments cannot be considered as bearing on the reasonableness of freight rates. Economical financing of the Grand Trunk has been rendered extremely difficult, if not impossible. Appropriations of all kinds have been cut and repairs have been postponed. On Dec. 31, 1915, over 4000 cars were held for repairs, notwithstanding the lighter traffic of the year. In order to keep the equipment in proper shape, it will be necessary to obtain 1,249 new freight cars at an expenditure of \$2,238,000. Normal track renewals would require 431 miles; for the period 1913 to 1915, inclusive, the track renewals were only 45% of this standard; and for the year 1915 the renewals fell to 67 miles. The renewal work on bridges and culverts during 1915 is \$20,000 below the average yearly expenditure of the period of 1906 to 1915. The economies so made cannot continue indefinitely without great loss and inconvenience to the public.

In the Western Rates Case, the Government expert computed that 6% should be allowed so as to provide 4% for interest charges and 2% for surplus. Money is now more expensive. Taking the cost of the Glen Tay-Agincourt line and adding \$10,000 a mile for equipment, the net earnings would have to be \$4,800. If the Toronto-Sudbury line is taken as a basis, net earnings per mile would have to be \$4,001; while if the Intercolonial is taken they would have to be \$4,500. Aside entirely from the terminal expenses, the Grand Trunk net earnings in the best year are far short of these figures.

The proposed increases on fruits are postponed until they can be considered along with proposed increases in icing and salt for refrigeration, which are now under suspension.

The Western Rates Case pointed out the differences between conditions in Eastern and Western Canada; and, notwithstanding material reductions, the general schedule in the west is higher. The Railway Act requires and the general public interest of the country demands that, if practicable, eastern rates should be advanced so that the different schedules may more nearly approach a parity. The effect of new competing lines, e.g., the Canadian Northern, constructed recently, is not considered in striking a reasonable basis. The increases made are justifiable entirely on the mere fact of the increases in Grand Trunk expenses, and having regard to traffic of normal years.

Besides the class tariffs of general application, meaning the rate scales used

everywhere in connection with the Freight Classification, the application of the railway companies comprises over 150 exceptional or special single rates and more or less comprehensive schedules of exceptional rates, lower than the class rates, applicable to various commodities. To quote the judgment: "No flat increase of 5, 10 or other percentage could be applied simply to augment railway revenue. Each rate of necessity has to be considered, having regard to its reasonableness for the service performed." As each of these items has thus been separately dealt with on its merits, it is impossible within the limits of a newspaper article to give any clear synopsis of the Board's conclusions. A selection of two or three commodities, by way of illustration, would convey no true conception of the general result and might prove misleading. The shippers interested in the several lines of trade represented in the application will arrive at their own conclusions from a study of this section of the judgment. The application with respect to some of the commodity items has been declined, and in numerous instances less has been granted them than asked for by the railway companies.

The findings regarding the class tariffs may however, briefly be summarized. In the territory bounded on the west by, but not including, Port Arthur, and by the Georgian Bay, Lake Huron and Detroit river, and on the east by Quebec and Megantic, also between C.P.R. stations in New Brunswick, the class rates, provided they are now lower than the standard or maximum mileage tariff, may be increased by 2c. in the 1st and 1c. in the 5th classes, the rates for the other classes to be properly proportioned in accordance with the standardized scale. An exception is made of the Canadian Pacific and Canadian Northern lines between Parry Sound and Sudbury, on which no increases are allowed.

Because of the comparatively lower level of the rates to the Maritime Provinces, greater increases are permitted. Between points in the provinces of New Brunswick and Nova Scotia and points west of Quebec, Levis and Megantic as far as Montreal and Valleyfield, and north of the Ottawa river, the 1st class will be advanced 4c. and the 5th class 2c.; the other classes in proportion. Between the same maritime sections and points west of Montreal the carriers are authorized to increase their rates by 6c. for the 1st class and 5c. for the 5th, the remaining rates fitting in from the standardized scale. Here, again, an exception is made of the C.P.R. line in the St. John river valley, where the rates, instead of being advanced, will be lowered by the company so as not to exceed the St. John rates; this relief being due to the opening of the National Transcontinental south of Edmundston, N.B. As the government railways are not subject to the Board's jurisdiction, the Intercolonial and National Transcontinental management is, of course, free to fix its own rates; nevertheless, the judgment provides that the through rates of the Grand Trunk, Cana-

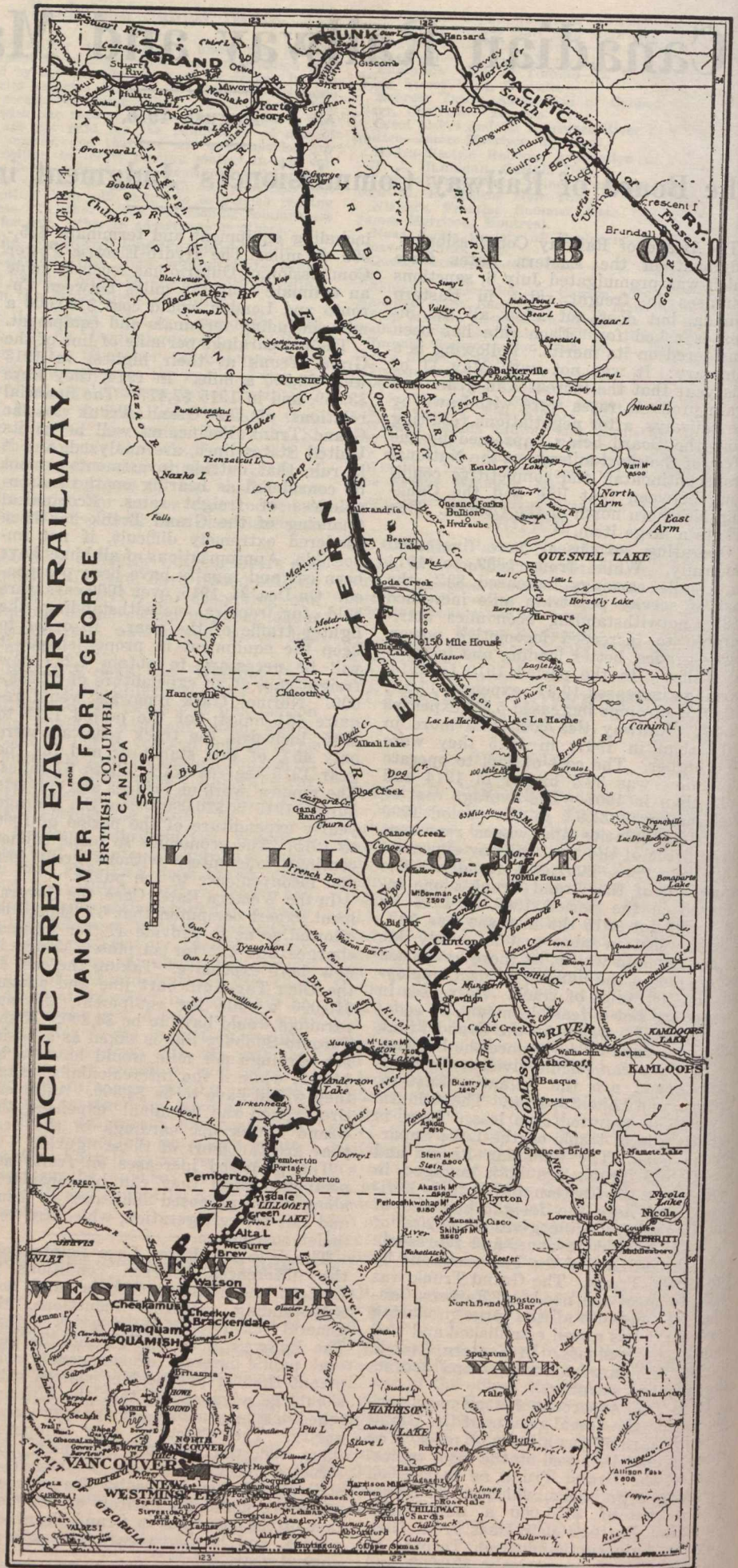
dian Pacific, and other independent companies in Quebec and Ontario, to Intercolonial points east of St. John to Halifax and Sydney are to preserve the same differences, if any, over the St. John rates as at present.

The Board's judgment and order occupies 256 pages 5 x 8 in. of closely printed matter.

The Pacific Great Eastern Railway's Location and Construction.

The Pacific Great Eastern Ry., which was projected to form the connecting link between the Grand Trunk Pacific Ry.'s transcontinental line and the city of Vancouver, will upon completion serve a vast extent of local territory adapted to agricultural, mineral and other development; and while providing a convenient through route to Vancouver and other southern cities will constitute an avenue of traffic to market for the products of the interior.

From Vancouver the line follows the north shore of Burrard Inlet and English Bay, and the east shore of Howe Sound, to its head, about 44 miles from Vancouver. At the head of Howe Sound is Squamish, the company's ocean terminus. Howe Sound forms a magnificent land locked harbor 25 miles long and at its narrowest point not less than a mile wide. The harbor is claimed to be the most commodious on the Pacific coast, having regard to freedom from currents and winds and the safe anchorage that it affords, there being no obstruction of any kind to navigation throughout its entire length. The Pacific Great Eastern management believes that Squamish will be one of the most active ports on the western coast, as it will form the virtual Pacific terminus of the G.T.P.R. transcontinental line (the other Pacific terminus of that line at Prince Rupert serving more as a link in transpacific traffic to the Orient); and from the local traffic that will be developed along the Pacific Great Eastern Ry., which, passing in a north and south direction through the central part of the province, will render commercially available the vast natural resources of the territory adjacent to it, agricultural, mineral, and industrial, including lumber. The mineral tonnage alone is expected to prove an important source of revenue to the company. With the extension of the present dock and the construction of grain elevators, the company expects to handle at Squamish a large volume of Prairie wheat, which it is becoming increasingly evident must find western outlets, partly to meet the growing Oriental demand for Canadian wheat, and to shorten the rail haul. It is contended that in the near future the bulk of the wheat crop produced west of the 110th meridian of west longitude (the eastern boundary of Alberta) will reach its markets through Pacific rather than Atlantic ports. That this is possible is due to several important factors of which the following three are perhaps the most worthy of mention: 1, the favorable grades obtained by the Grand Trunk Pacific, the Canadian Northern and Pacific Great Eastern through British Columbia, and the improvements recently effected in the Canadian Pacific grades across the Rockies; 2, the construction of the Panama Canal; 3, refrigeration in grain carrying ships, preventing the sweating of wheat while passing through tropical waters. Steamships now ply regularly between Vancouver and



Squamish, connecting with the P.G.E.'s trains at the latter point.

Leaving Squamish, the line passes for a short distance through the extremely fertile Squamish River Valley, an interesting and valuable product of which is the hop crop. Flowing into the Squamish River is the Cheakamus, which the railway follows through some of the best timber lands in the province, which investigators state are also highly mineralized. Scenically this is a beautiful section, of river, waterfall, forest and mountain heights. It has also excellent shooting and fishing. From the Cheakamus Valley the line follows a chain of lakes and rivers, and passes through Pemberton meadows, comprising stretches of beautiful farm land. An experiment is being made there, under the direction of the British Columbia Government, in the raising of sugar beet, as it is believed that the soil and favorable climate are well adapted for the industry. Leaving Pemberton meadows the line follows the Birkenhead River through country very similar to that adjacent to the Cheakamus River. It thence continues northerly around the west shores of Anderson and Seton Lakes, and enters Lillooet, celebrated in the early days of the province for the rich gold washings along the banks of the Fraser River at that point, but now more justly renowned for its fine quality of fruit and melons. At Lillooet the line crosses to the east bank of the Fraser River, which it follows northerly to Kelly Lake, and thence runs in a more northeasterly direction to Clinton, the present (July, 1916) end of track, 167 miles from Squamish. From Clinton northerly until the line again approaches and follows the Fraser River the country is open, and adapted to mixed farming and ranching. Most of the land, however, requires irrigation, although dry farming has been successfully carried on. From Soda Creek the line follows the Fraser River to Prince George, where it will connect with the Grand Trunk Pacific main line. Grading is practically finished over the whole line, and although no portion of the line north of Clinton is being operated, track-laying is proceeding as rapidly as possible. Owing to the great number of bridges and the amount of trestle work in the first 8 miles, progress is necessarily slow, and it is not expected that track will be laid to Prince George until the end of 1917.

From Prince George the company's next objective is the Peace River country, where it is estimated there are 7,500,000 acres available for settlement, with excellent climate and fertile soil, adapted both for raising grain and mixed farming. It is not likely, however, on account of present economic conditions, that work will be started on this extension before next year or probably later.

The location of the Pacific Great East ern was determined after the company's engineers had studied all previous surveys through the territory, had exhausted all other available sources of information as to possible routes, and had carefully investigated the country by actual survey. In deciding upon the route adopted, the engineers were guided by considerations of probable future operating expense and revenue, as well as the initial cost of construction. The line adopted is suitable to the character of country traversed. The gradients and curvature, while not as low as those on the Canadian Northern and Grand Trunk Pacific, are said to be more favorable than on the Canadian Pacific's main line through British Columbia, and are greatly superior to those of the Santa

Fe, over which a tremendous volume of business is handled.

A high standard of construction was set and is being maintained throughout the entire work. The embankments are wide; drainage has been well provided for; all structures in the roadbed are designed to carry the heaviest rolling stock; and the few short tunnels have been well taken out to standard dimensions. The rails on level ground and light grades are 60 lb. to the yard, but 70 lb. steel is used on the heavier grades. A good quality of ballast is generally available conveniently near to the line and is being well distributed under the track, so that in every essential detail the road is a good one.

At Squamish a terminal yard has been laid out and a 6 stall locomotive house constructed to meet present requirements, and an oil fuel station installed. At Lillooet, the next division point, similar facilities are being furnished. Oil fuel is to be burned in the locomotives. An abundant supply of good water is available, so that with the oil fuel and suitable water the railway should be sigularly free from boiler trouble.

J. W. Stewart, of Vancouver, a member of the firm of Foley Bros., Welch and Stewart, and D'Arcy Tate, K.C., of Victoria, are the President and Vice President respectively of the company. John Callaghan is its Chief Engineer.

Birthdays of Transportation Men in August.

Many happy returns of the day to:—

V. T. Bartram, ex-Purchasing Agent, Timiskaming & Northern Ontario Ry., now of Toronto, born at Ottawa, Aug. 2, 1880.

J. C. Beckwith, Engineer of Construction, Canadian Government Railways, Moncton, N.B., born at Fredericton, N.B., Aug. 1, 1875.

C. B. Brown, M.Can.Soc.C.E., Chief Engineer, Canadian Government Railways, Moncton, N.B., born at Ithaca, N.Y., Aug. 27, 1879.

J. S. Carter, District Passenger Agent, C.P.R., Nelson, B.C., born at Aurora, Ill., Aug. 14, 1864.

A. E. H. Chesley, General Accountant, Dominion Atlantic Ry., Kentville, N.S., born near Annapolis Royal, N.S., Aug. 27, 1877.

A. B. Chown, Travelling Passenger Agent, G.T.R., Pittsburg, Pa., born at Belleville, Ont., Aug. 4, 1887.

G. T. Coleman, Car Service Agent, Ontario Division, C.P.R., Toronto, born at Carleton Place, Ont., Aug. 25, 1875.

C. H. N. Connell, Engineer Maintenance of Way, Quebec Grand Division, Canadian Northern Ry., Montreal, born at Woodstock, N.B., Aug. 26, 1876.

C. E. Croft, Chief of Commissary Department, Canada Steamship Lines Ltd., Toronto, born at Cobourg, Ont., Aug. 26, 1882.

E. L. Desjardins, Assistant Superintendent, Montreal and Ste. Flavie District, Intercolonial Ry., Riviere du Loup, Que., born at St. Jean Port Joli, Que., Aug. 1, 1859.

L. C. Fritch, General Manager, Eastern Lines and Assistant to President, Canadian Northern Ry., Toronto, born at Springfield, Ill., Aug. 11, 1869.

G. H. Ham, Head Office Department, C.P.R., Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. P. Hinton, Traffic Manager, Grand Trunk Pacific Ry., Grand Trunk Pacific Coast Steamship Co., and Western Traffic Manager, Canadian Government Railways, Winnipeg, born at Hintonburg, Ont., Aug. 30, 1871.

R. Kerr, ex-Passenger Traffic Manager, C.P.R., born at Toronto, Aug., 1845.

C. T. Knowlton, Superintendent of Ferries, Canadian Government Railways, Moncton, N.B., born at Advocate Harbor, N.S., Aug. 26, 1849.

J. D. McDonald, Assistant General Passenger Agent, G.T.R., Chicago, Ill., born at Toronto, Aug. 27, 1855.

T. McHattie, Master Mechanic, Eastern Lines, G.T.R., Montreal, born at Dufftown, Banffshire, Scotland, Aug. 8, 1854.

M. K. McQuarrie, Resident Engineer, District 1, British Columbia Division,

C.P.R., Revelstoke, born at Sault Ste. Marie, Ont., Aug. 17, 1884.

A. H. Mahon, District Locomotive Foreman, Grand Trunk Pacific Ry., Edson, Alta., born north of Ottawa, Ont., Aug. 27, 1874.

W. J. Meakin, Car Foreman, C.P.R., Wetaskiwin, Alta., born at Toronto, Aug. 22, 1872.

C. Montgomery, Master Mechanic, Pere Marquette Rd., St. Thomas, Ont., born near London, Ont., Aug. 29, 1860.

W. E. Mullins, General Manager, (Freight), United Fruit Co., New York, born at Stratford, Ont., Aug. 13, 1870.

H. R. Naylor, Division Car Foreman, Eastern Division, C.P.R., Montreal, born at Hull, Eng., Aug. 30, 1885.

F. H. Phippen, K.C., General Counsel, C.N.R., Toronto, born at Belleville, Ont., Aug. 26, 1862.

W. M. Porteous, District Freight Agent, C.P.R., St. Louis, Mo., born at Edinburgh, Scotland, Aug. 3, 1857.

J. F. Richardson, ex-Superintendent Telegraphs, Saskatchewan Division C.P.R., born at Granby, Que., Aug. 23, 1861.

W. G. Ross, Chairman, Montreal Harbor Commissioners, born at Montreal, Aug. 6, 1873.

W. Le B. Ross, Local Treasurer, G.T. Pacific Ry., Winnipeg, born at Ottawa, Ont., Aug. 9, 1868.

F. C. Salter, European Traffic Manager, G.T.R., and Canadian Ex. Co., London, Eng., born at Sarnia, Ont., Aug. 31, 1863.

A. O. Seymour, General Tourist Agent, C.P.R., Montreal, born at Ogdensburg, N.Y., Aug. 14, 1887.

S. A. Simpson, Superintendent, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Winnipeg, born at Toronto, Aug. 22, 1880.

J. F. Sweeting, Industrial Agent, Natural Resources Department, C.P.R., Calgary, Alta., born at Worthing, Eng., Aug. 20, 1872.

F. E. Warren, General Car Foreman, C.P.R., Winnipeg, born at Chelsea, Que., Aug. 29, 1872.

W. B. Way, Superintendent, District 2, National Transcontinental Ry., Cochrane, Ont., born at Bowmanville, Ont., Aug. 22, 1867.

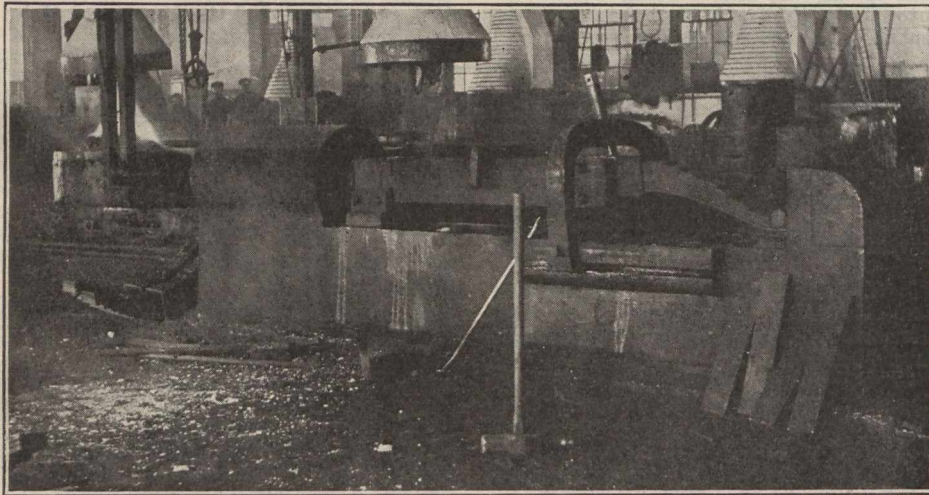
E. H. Williams, Locomotive Foreman, Canadian Northern Ry., Brandon, Man., born at West Toronto, Ont., Aug. 26, 1884.

The G.T.R. tunnel under the St. Clair River at Sarnia, Ont., was flooded July 21, owing to very heavy rains, there being a depth of 4 ft. in it. Traffic was interrupted and a number of trains were dispatched via Windsor.

Railway Mechanical Methods and Devices.

Stripping Spring Buckles at Grand Trunk Railway Shops.

The accompanying illustration shows a spring buckle stripping press in use in the G.T.R. shops, Stratford, Ont., which has a capacity of about 6 springs an hour, and is, in consequence, a big im-



Machine for Stripping Buckles from Locomotive Leaf Springs.

provement on many of the generally accepted methods of stripping buckles. It consists of a heavy base and cylinder cast integral, the cylinder operating with an air pressure. At the end opposite to the cylinder there is a heavy vertical flange from the base, against which the springs rest. A crosshead, guided on ways along the upper face of the base, carries two heavy bars, which may be adjusted laterally for different widths of springs, these bars spanning the spring. They are kept close against the side of the spring, during operation, by a clamp. Spanning the base beyond these arms is a heavy forged bridge, with a heavy square threaded screw centrally in the cross arm, set at a slight angle away from the cylinder. This cross arm moves in ways along the side of the base, for adjustment for various sizes of springs, preventing the spring from vertical buckling.

The spring to be stripped is placed on the table of the base, the side arms placed against the buckle and clamped together, and the screw in the top of the cross arm tightened down. The air pressure in the cylinder then forces the band off the spring in one movement. Most of the time is consumed in setting up the spring for operation, but, even with that, the high rate of production mentioned above is easily maintained.

Locomotive Washing at Lambton Yard, Canadian Pacific Railway.

Outside of the locomotive house at Lambton, near Toronto, about 50 ft. from the approach to the turntable, a washing floor is constructed, as shown in the accompanying plan. The ordinary practice of using a mixture of air, water and oil is followed, from a tank and hydrant, situated about the centre of the washing floor, between the two parallel tracks which run through the floor. Water and air pressure are supplied at about 60 lb. pressure, so that the nozzle throws a fine spray, which cuts off the

dirt and grease and leaves a coating of oil all over the sprayed portion.

The track bed is drained from the centre, between the rails to the outside, and a parallel trough about 6 in. deep carries the surplus water and oil to a point about 20 ft. away, where a concrete trap tank is located. This tank is 2½ ft. wide by 4 ft. deep, and is drained from the bot-

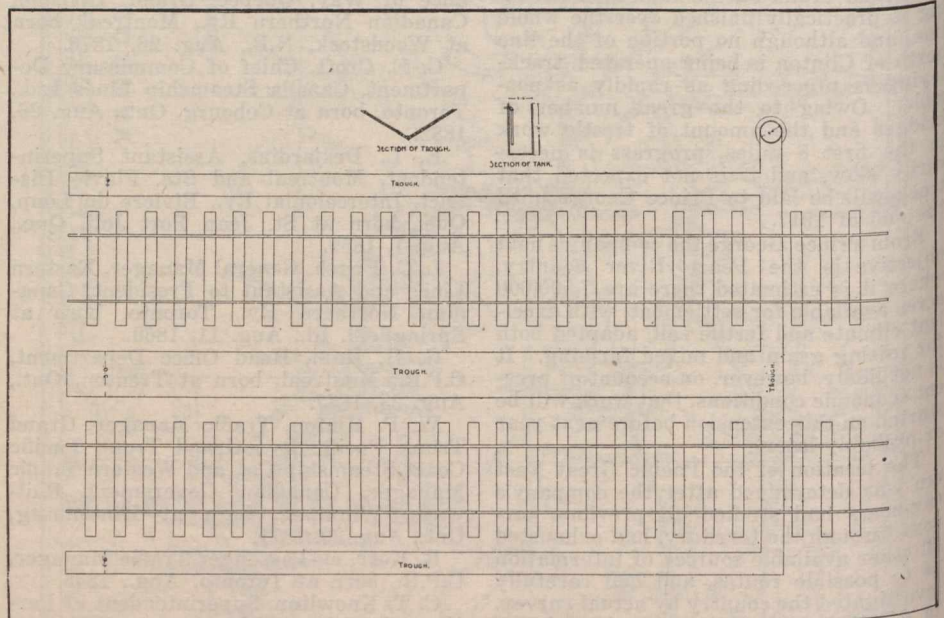
Savings Effected by Welding in Railway Shops.

The following information has been received in response to requests from Canadian Railway and Marine World:—

G.T.R. Shops, Point St. Charles, Montreal.—A. A. Maver, Master Mechanic, writes: When we first started to use Thermit welding, about the time when it was first introduced, we were told that the parts to be welded did not require to be heated. We were also restricted to the amount of Thermit to be used; but, after having had some experience, we find that to obtain the best results plenty of Thermit had to be used, in order to give a good flow through the mould. We also found pre-heating to be necessary for successful Thermit welding, as the hotter the parts to be welded the more successful will the weld be.

For relining crucibles, magnesia tar should always be used. In some cases, when we did not have magnesia tar on hand, we have lined our crucibles with old brass crucibles, fire clay, and sand, but found the sand would mix with the metal, making a silicon, thus causing the steel to become very hard and brittle, and liable to break. In Thermit welding the most important things to be seen to are to have the crucible properly lined, to use plenty of Thermit, and to have the parts to be welded as hot as possible.

Oxy-acetylene welding has been used very extensively in the Point St. Charles shops for a large variety of work during the past seven years, motion plates, spectacle plates, etc., and locomotive frames being built up where worn away by stays or brake hangers. Flat spots on tires are successfully welded in their place, mis-drilled holes filled up, faulty castings re-



Track Troughs for Locomotive Washing.

reservoir to the washing machine, allowing the oil to run right into the machine over and over again.

It is estimated that this process reclaims 66% of the oil used for washing down, and keeps a yard much cleaner than when the oil and water are allowed to soak into the ground. We are indebted for the above information to E. J. Murphy, Locomotive Foreman, C.P.R., Lambton, Ont.

claimed, and shop machinery repaired. We have also repaired cast iron parts of machines and welded lugs on steam shovel cylinders, etc. A large percentage of the above material would have been scrapped but for our ability to reclaim it by this welding method.

All cast iron articles to be welded should have the cracks or broken parts chamfered to a 45° V, leaving just about ¼ in. fitting edge, according to the size

of the castings, and then be heated up slowly in a charcoal fire to a red heat, and as soon as the welding is done the article should be buried in ashes till it has cooled right down. We find this to be the only way to make a reliable job.

Three years ago the water chamber of a hydraulic pump (steel casting), subjected to a pressure of 3,000 lb. a sq. in., opened up pores, and part of the valve face was cracked. It was successfully welded, and has been in constant use ever since.

Whenever possible all heavy parts to be welded should be pre-heated, as it saves time and gas, and makes a more homogeneous joint.

In boiler work, all sorts of patches and cracks, also half and side sheets, are successfully welded, and metal built upon wasted foundation rings, dry pipe joints, etc., all patches, cracks, and side sheets being chamfered to a 45° V.

Cutting by the oxy-acetylene process on steel or wrought iron saves many hours of labor. For example, a fire box side sheet can be cut across and down the centre in twenty minutes, and a fire hole patch measuring nine feet can be cut in the same time.

G.T.R. Shops, Battle Creek, Mich.—J. C. Garden, Master Machanic, writes: We have used Thermit for a number of years, with very good results. When we first got the machine our welds were not satisfactory, although we followed closely the instructions issued by the Thermit representative. The material at the weld was hard and brittle, and, with very few exceptions, the welds broke before they had been any length of time in service. I explained this to one of their representatives who called on me, and he asked to be allowed to watch us make a weld, which I permitted him to do. Before we got well started he said that it would be impossible for us to make a proper weld under the conditions we were using; that the material with which we were lining our crucibles would destroy any weld, the crucible being lined with carborundum and silicate of soda, the metal passing through this carborundum would pick up sufficient carbon to make it as hard as glass. We asked him what was required, and he told us to line the crucible with a special preparation of tar. He also advised that the Thermit mixture we were using was not suitable, as it was put up in a big can and the matter separated, the lighter portion coming to the top so that the mixture would not be correct. He advised that we should stir the whole body of this mixture every time we used it, but recommended that we procure the mixture in small cans, which should be freely shaken before being used. We followed his instructions and our Thermit welds afterwards were perfectly satisfactory, the metal being soft enough to machine or cut with a hammer and chisel, and since adopting this system we have never had a weld break.

We are also getting very good results with electric welding, especially on locomotive frames, but the success of this welding also depends on using the proper material. If the proper grade of iron is not used it will be hard and break. We use the Thermit machine for very little except locomotive frames, but on one or two occasions we welded cast steel wheels which were broken in the spokes, to save time in procuring the wheel. The results in both cases are equally satisfactory.

With the electric welder we weld broken cylinders, if they are broken in the cavity, which takes only exhaust steam, but we have not been able to weld satis-

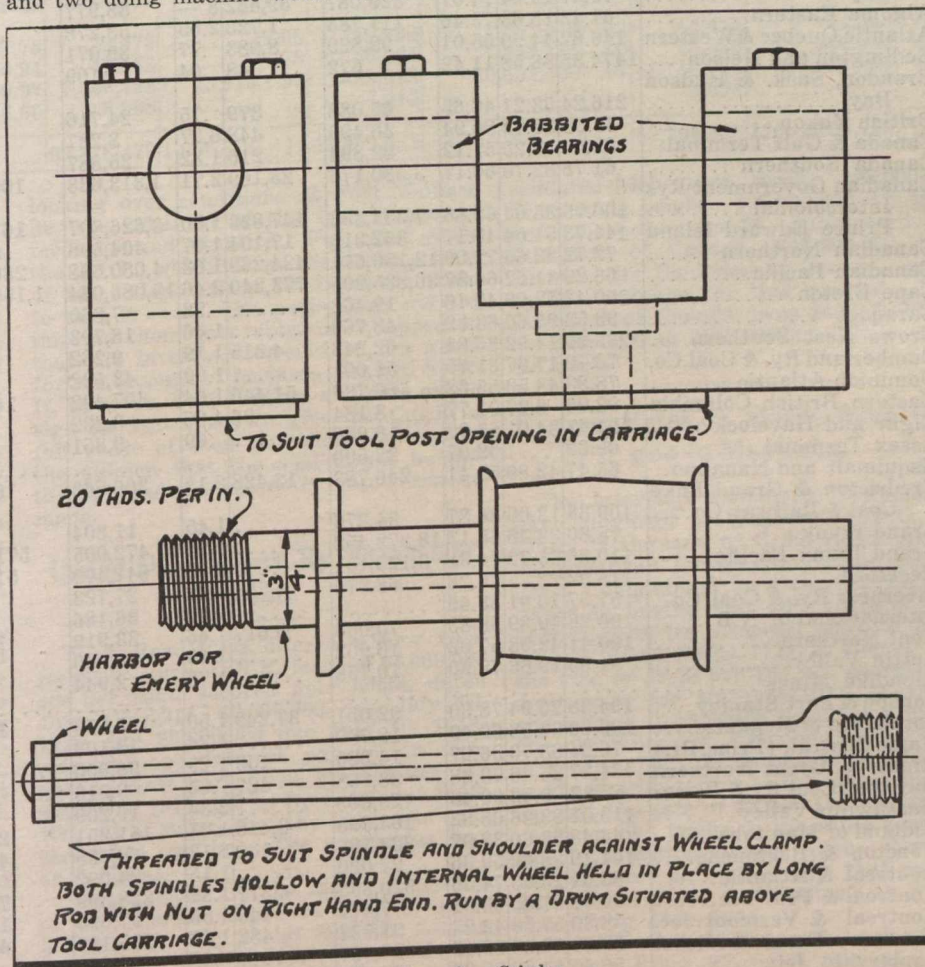
factory on the high pressure cavities. We weld frames and all iron and steel parts on locomotives, cracked bridges in tube sheets, patch in fireboxes, and fill staybolt holes, which have been worn large, for retapping. We have also been very successful in repairing high speed milling cutters—in fact, the number of purposes for which this machine can be used is unlimited.

Canadian Northern Railway, Winnipeg Shops.—L. Wedge, General Locomotive Foreman, writes as follows: Four men are continuously employed by us on oxy-acetylene welding, which we find very satisfactory, two men doing the boiler work and two doing machine work. With this

greater saving was made in material than if the cylinder had pieces broken out of the front 12 in. long and 16 in. wide, U shape.

Welding flat spots on driving tires is a practice which is also a great saving in both time and material, as it is not necessary to lift the locomotive off the wheels or to turn the tires, which necessarily shortens their life by some 12 months or more, depending on the size of the socket.

The above are only a few of the important jobs done by welding in this shop, but the fact that we keep four men continuously on this work will give an idea of how much we accomplish by this process of welding.



Long Arm Grinder

Long Arm Grinder on Grand Trunk Pacific Railway.

process of welding we effect a great saving in time and material. A breakdown occurred in our pumping station a short time ago which was very serious. Two of the water cylinders were broken, and it would have taken considerable time to make patterns and have castings made from them and machined. Instead, the broken cylinders were welded by acetylene, and were in working order again in three or four days, which was a saving of at least ten days against having new castings made and machined.

A great saving is also effected by welding lugs on air pumps which have been broken off; also by welding split pipes. An equally great saving is effected in our superheater work, welding headers in fire welding in side sheets, cracks in fire boxes, side fire boxes where worn by driving wheel rubbing same, and welding broken cylinders on locomotives.

Two locomotives which were just out of the shop had their cylinders badly broken. These, of course, could be patched, but by welding they were repaired by good as new. They were repaired by acetylene welding in a shorter time, and a

A useful attachment for motion and general grinding is shown by the accompanying illustration. The saddle block is formed to suit the tool post opening in carriage on lathe, to which are attached two hollow spindles, one operating in babbitt lined bearings and saddle block and fitted with drum, which is belt connected to an operating shaft above the tool carriage. The main spindle carries a 3/4 in. arbor for an emery wheel, and is locked firmly by the extension spindle, which is screwed into place as shown, being further held by a long rod carrying small outer wheel on right hand end and terminating at left hand face of saddle block. The device has been found of great convenience for roundhouse work in grinding taper pins and holes, piston rings, joint rings, etc. It is in operation at the Grand Trunk Pacific shop, at Wainwright, Sask., and we are indebted to W. W. Yeager, formerly Locomotive Foreman there and now at Biggar, Sask., for the above data.

Steam Railway Statistics for Year Ended June 30, 1915

The table given in our June issue showed the financial results of the operations of steam railways for the year ended June 30, 1915. The following table gives the percentages and the principal statistical information compiled by the companies. The table published in June and the one given below contain all the information given prior to 1910 in our compilation of these statistics, but the columns have been rearranged so as to combine in the first table the financial and in the second the statistical information:

Name of Railway	Ratio of Operating Expenses to Operating Revenue	Proportion of total Passenger service train revenue to total earnings	Proportion of freight plus switching revenue to total earnings	Revenue Train Mileage	Mileage of Non Revenue Trains	Earnings per Train Mile	Passengers Carried	Passengers Carried One Mile	Passenger Earnings per Train Mile	Tons of Freight Carried	Tons of Freight Carried One Mile	Freight Earnings per Train Mile
Algoma Central & Hudson Bay	79.47	10.64	74.57	329,087	39,442	\$ —	38,977	2,004,993	\$ —	612,907	53,950,431	\$ —
Algoma Eastern	61.42	15.63	73.46	111,783	1,723	2.55	53,278	1,412,588	.77	733,397	11,386,065	3.77
Atlantic, Quebec & Western	146.62	44.99	55.01	99,829	8,983	.77	39,071	1,338,088	.58	60,082	2,411,143	.86
Bedlington and Nelson	1474.35	88.58	11.42	672	48	.04	109	745	.03	4	25	.50
Brandon, Sask. & Hudson Bay	216.24	53.21	46.65	65,083	379	.75	24,716	832,268	.60	38,775	1,741,128	.86
British Yukon	32.08	18.79	80.94	46,495	448	6.27	8,287	511,665	1.41	33,593	2,951,708	5.23
Canada & Gulf Terminal	89.00	48.25	51.12	22,894	216	1.82	25,887	521,161	.88	22,542	668,969	.94
Canada Southern	61.78	32.78	66.17	3,580,173	25,169	2.71	1,313,638	108,521,682	1.57	6,732,879	1,024,395,449	3.67
Canadian Government Rys												
Intercolonial	100.79	35.04	63.86	7,344,453	147,823	1.50	3,626,897	167,936,915	1.24	4,442,510	1,157,448,089	1.57
Prince Edward Island	144.73	51.54	45.17	382,315	17,194	1.07	404,598	9,780,362	.57	122,257	4,718,286	.83
Canadian Northern	72.72	23.65	72.59	12,156,671	424,269	1.63	4,080,668	230,580,776	.88	10,536,769	2,150,365,193	2.00
Canadian Pacific	66.29	31.62	66.37	36,835,905	773,240	2.46	13,086,064	1,155,371,348	1.44	21,490,596	7,734,433,065	3.47
Cape Breton	200.42	52.09	45.46	19,468	.....	.53	7,860	172,277	.27	5,415	156,443	.24
Caraquet	93.53	33.60	63.32	48,760	.....	1.46	18,793	670,007	.49	42,252	1,478,820	.92
Crows Nest Southern	233.20	14.92	85.04	62,248	4,815	1.19	9,262	257,934	.25	136,741	8,163,054	1.66
Cumberland Ry. & Coal Co.	73.79	17.67	81.85	51,001	.....	1.99	43,592	456,526	.58	352,849	5,264,321	1.63
Dominion Atlantic	78.83	43.59	55.62	566,733	51,446	1.64	407,492	14,596,307	.84	326,628	21,727,462	1.85
Eastern British Columbia	92.06	6.27	91.77	8,184	96	4.06	3,232	33,019	.25	92,023	849,256	2.90
Elgin and Havelock	101.41	34.01	65.99	16,956	.....	.69	9,851	93,585	.23	10,049	.....	.45
Essex Terminal	65.32	.....	92.07	22,500	.....	.....	.....	.....	.....	164,359	821,795	.....
Esquimalt and Nanaimo	65.47	42.89	53.41	246,783	13,428	2.19	306,563	6,839,181	1.57	291,822	10,209,144	2.91
Fredrick & Grand Lake												
Coal & Railway Co.	109.35	12.00	86.37	34,376	.....	1.45	11,804	263,586	.21	96,568	2,998,710	1.56
Grand Trunk	75.80	33.46	65.13	18,979,452	.....	1.92	11,472,005	571,131,995	1.35	18,496,023	3,401,015,166	2.20
Grand Trunk Pacific	110.86	23.72	74.31	3,125,151	.....	2.13	641,479	51,449,211	1.20	1,454,061	683,064,081	2.51
Hereford	115.92	22.77	76.78	68,370	758	1.32	27,723	524,026	.31	85,602	1,834,357	1.99
Inverness Ry. & Coal Co.	57.57	10.91	88.46	.....	.....	2.00	38,186	823,086	.54	288,470	15,898,665	1.77
International of N.B.	96.26	40.39	58.83	70,053	5,617	1.46	33,919	1,376,427	.65	52,568	2,290,950	1.02
Kent Northern	100.41	42.98	57.02	16,902	.....	1.19	10,000	145,060	.51	7,250	145,000	.68
Kettle Valley	91.86	19.63	78.90	10,758	.....	1.70	2,944	111,507	.37	33,540	267,170	1.34
Klondike Mines	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
London & Port Stanley	104.33	20.94	78.30	92,051	37,249	1.50	105,559	1,803,436	.54	594,704	10,335,761	2.27
Lotbiniere & Megantic	109.68	30.53	69.49	18,780	.....	1.24	13,109	178,821	.38	22,773	317,001	.86
Maine Central, (Princ. Br.)	76.24	63.73	36.27	14,385	153	1.29	90,000	459,046	1.15	228,981	1,168,803	.64
Manitoba Great Northern	434.37	25.46	73.38	38,858	427	.63	8,913	203,131	.18	44,029	1,896,184	.61
Maritime Coal, Ry. & Power	57.88	9.53	90.43	29,666	.....	2.34	19,209	191,561	.22	212,149	2,270,762	2.11
Massawippi Valley	113.51	33.36	65.82	163,398	3,415	1.23	151,251	2,509,837	.63	503,781	14,719,664	1.98
Midland of Manitoba	144.48	53.60	38.97	224,182	132	1.12	76,635	4,762,412	.92	140,296	9,978,410	1.19
Moncton & Buctouche	101.19	38.62	59.36	27,020	.....	1.15	24,002	504,320	.60	21,100	433,168	.90
Montreal & Atlantic	83.61	23.53	74.56	510,853	6,377	1.82	328,399	7,695,366	.72	1,069,553	55,285,411	2.03
Montreal & Province	85.82	37.65	60.31	77,471	445	1.36	97,698	1,925,325	.73	93,129	2,394,415	1.75
Montreal & Vermont Jct.	58.80	57.58	42.25	91,538	482	1.37	195,120	4,073,736	1.15	356,275	8,550,600	1.83
Morrissey, Fernie & Michel	89.20	10.85	89.15	27,097	.....	3.45	123,400	752,740	.37	494,137	3,014,235	2.87
Napierville Jct.	56.49	14.80	85.00	47,438	.....	2.51	25,095	449,882	..	406,017	11,564,098	3.99
National Transcontinental	127.13	.....	.....	236,057	.....	1.18	33,609	1,589,955	2.38	222,372	22,018,668	1.04
Nelson & Fort Sheppard	200.76	44.22	51.62	56,318	433	.83	19,418	524,204	.55	20,245	768,536	1.29
New Brunswick Coal & Ry. Co.	112.64	30.97	63.26	31,139	.....	1.28	17,938	420,850	.42	39,289	811,588	.86
New Brunswick & P.E.I.	117.10	30.27	69.49	38,054	1,684	1.29	19,807	357,328	.55	65,339	1,520,084	.94
New Westminster South	81.24	27.11	65.81	21,276	16	1.39	11,081	116,179	.37	44,088	416,387	.91
Northern New Brunswick & Seaboard	279.89	.....	.....	2,027	12	..	1,080	1,080	..	1,335	1,335	..
North Shore	119.88	24.84	75.16	.....	.....	.24	786	6,288	.06	1,550	12,400	.18
Ottawa and New York	133.78	43.81	55.27	133,222	20,138	1.59	127,634	3,185,802	1.17	318,512	15,191,603	2.16
Pere Marquette in Canada	61.52	7.06	92.18	1,114,721	9,533	2.15	299,374	5,631,843	.65	2,745,460	443,368,764	2.52
Quebec Central	67.42	31.06	67.40	706,668	192,486	1.89	387,620	16,644,012	.84	870,393	67,538,021	1.83
Quebec, Montreal & South	126.01	42.50	56.92	289,870	6,553	1.24	245,315	5,279,102	.72	307,352	12,242,673	1.23
Quebec Oriental	94.60	45.04	54.89	104,015	5,223	1.18	30,360	1,987,750	.86	55,224	4,455,111	1.27
Quebec Ry. Light & Power	91.45	11.37	88.28	27,757	915	2.82	82,194	628,539	1.22	216,588	1,634,317	3.35
Roberval-Saguenay	53.84	6.09	62.13	375,935	.....	..	21,233	691,103	..	186,013	3,237,634	.....
Red Mountain	212.75	27.95	69.71	6,480	84	1.72	6,509	57,878	.53	14,690	131,806	.91
Rutland & Noyan	82.31	60.12	39.88	7,597	.....	1.85	117,720	399,071	1.55	174,602	591,901	2.60
Salisbury & Albert	96.62	32.79	59.75	29,960	.....	1.20	14,841	329,937	.39	41,059	756,418	.72
Schomberg & Aurora	126.73	49.29	50.71	22,897	.....	.52	20,616	183,582	.25	8,488	132,820	.26
Stanstead, Shefford and Chambly	112.29	49.39	49.95	82,944	1,521	.94	237,258	1,565,400	.63	415,080	2,075,520	.99
St. Clair Tunnel	37.93	.....	98.44	.....	.....	.....	.....	.....	.....	.....	.....	3.83
St. Lawrence & Adirondack	75.01	43.94	55.57	251,350	5,287	2.21	633,791	12,977,905	1.42	767,937	27,798,601	.70
St. Martins	90.39	33.43	66.84	17,340	.....	1.06	9,953	189,766	.34	15,065	231,117	2.70
Sydney & Louisburg	74.55	7.24	89.95	260,766	.....	2.76	167,640	2,202,369	1.00	4,468,504	67,202,852	.78
St. John & Quebec	123.31	29.27	69.32	34,139	1,341	1.13	16,727	452,355	.38	30,332	1,155,866	..

(Continued on page 313)

Steam Railway Statistics for Year Ended June 30, 1915 (Continued from page 312)

Name of Railway	Ratio of Operating Expenses to Operating Revenue	Proportion of total Passenger service train revenue to total earnings	Proportion of freight plus switching revenue to total earnings	Revenue Train Mileage	Mileage of Non Revenue Trains	Earnings per Train Mile	Passengers Carried	Passengers Carried One Mile	Passenger Earnings per Train Mile	Tons of Freight Carried	Tons of Freight Carried One Mile	Freight Earnings per Train Mile
Temiscouata.....	80.29	27.04	72.07	150,999	6,290	1.46	68,057	1,885,725	.41	152,017	6,502,762	2.02
Timiskaming & Nor. Ont.	95.33	37.24	60.43	814,600	58,456	1.81	502,342	20,534,411	1.13	662,336	86,500,437	2.19
Thousand Islands.....	73.63	35.48	54.74	30,500	.....	1.14	35,983	215,628	.40	28,673	172,038	.62
Toronto, Hamilton & Buffalo	75.02	31.81	67.86	428,617	12,578	2.93	581,539	16,470,669	1.30	1,769,488	64,631,644	6.46
Vancouver, Victoria and Eastern	126.31	35.72	59.78	287,399	42,952	1.76	182,541	4,824,409	.81	748,899	20,232,070	2.11
Victoria Terminal Ry. & Ferry Co.....	78.70	58.64	27.73	2,673	.....	1.08	51,990	51,470	.82	14,488	14,343	1.30
Victoria and Sidney.....	141.99	64.14	34.94	41,183	.....	.73	55,264	583,134	.60	16,538	201,385	1.09
Wabash in Canada.....	94.96	18.45	80.97	1,446,728	25,819	1.59	538,622	30,451,483	.61	1,786,738	387,121,605	2.43
York & Carleton.....	67.86	33.32	66.68	8,068	.....	..	6,940	.....	..	9,694	.....	....
.....	.....	.....	.....	93,218,479	1,955,104	..	41,551,031	2,483,708,745	..	87,204,838	17661,309,723	....

Canadian Government Railways' General Manager at Fort William.

F. P. Gutelius, General Manager, and other Canadian Government Railways officers were entertained at luncheon by the Fort William, Ont., Board of Trade, July 6. Mr. Gutelius outlined what the government railways had done, were doing, and what they proposed to do for the country. He gave a description of the foundation laying of this work in the construction of the Intercolonial in the Maritime Provinces and told how private lines had been purchased in that district to perfect the service there and improve the railway situation generally. During the past six or eight months the road has been worked to capacity and there has been an average of 300 car loads one way each day. During the past few weeks there have been 200 cars a day handled from Winnipeg east. Seventy-five of these came from the C.N.R. on account of the high water at Fort Frances and the remainder from the G.T. Pacific lines. By the lease acquired recently of the branch line which links Fort William with Winnipeg, Halifax and Winnipeg, have been connected so that there is a through passenger service, which has been recently installed, which makes 16 hours better time than any competitor. Mr. Gutelius stated that during the past year the earnings of the road have paid all the operating expenses and left a surplus of \$1,000,000.

He then went on: "A suggestion has been made this morning that some terminal company take charge of the shipping at Fort William the same as is done in Montreal where the Harbor Commission has charge of the docks and the tracks. I am in favor of this, as it would enable us to serve many elevators from which we are now barred and would enable us to economize in operating expenses. I expect, however, we will get some relief by obtaining direct connection with the government elevator at Port Arthur or possibly obtaining absolute control of this. If this occurs the elevator capacity which we will then have will be almost sufficient for our needs. The building of the new elevator at Transcona will not seriously diminish the quantity of grain to be handled at the head of the lakes, as it will merely handle new business coming from the opening up of new branches, traffic which never came by this route in the past."

He concluded by remarking that on

looking over conditions at Fort William he was ashamed of the freight accommodation and situation. For many years the G.T.P., which owned the triangle west of the union station, had wanted them to take it over. The proposition did not impress them favorably, as it appeared that the investment would be too great for the amount of business received by it. If, however, Fort William shippers would sign an agreement to give the C.G.R. a fair share of their patronage he was of the opinion that the deal might be put through and the necessary improvements made.

Canadian Northern Ry. \$6,000,000 Loan.

W. A. Read & Co. offered in New York recently a new C.N.R. loan of \$6,000,000 six per cent. secured gold notes, dated June 10, 1916, \$3,000,000 due July 10, 1917, and \$3,000,000 due July 10, 1918, principal and interest payable in U.S. gold in New York. The prices were, for notes due 1917, 100½; for notes due 1918, 100. It is stated that the issue was subscribed in one day. The prospectus was as follows:

"These notes are the direct obligation of the Canadian Northern Ry. Co., specifically secured by pledge with the trustee in New York, of \$9,115,140 par value of Canadian Northern Ry. System underlying 1st mortgage bonds unconditionally guaranteed as to both principal and interest by the Dominion of Canada, the Province of Saskatchewan, or the Province of British Columbia. The collateral pledged with the trustee is as follows: \$3,569,947 Canadian Northern Alberta Ry. Co. 3½% 50-year debenture stock, due April 1, 1962, principal and interest guaranteed by Dominion of Canada. \$1,539,982 Canadian Northern Ontario Ry. Co. 3½% 50-year debenture stock, due May 19, 1961, principal and interest guaranteed by Dominion of Canada. \$1,975,839 Canadian Northern Ry. Co. 4% stock, due Jan. 23, 1939, principal and interest guaranteed by Province of Saskatchewan. \$2,029,372 Canadian Northern Pacific Ry. Co. Branch Lines 4½% debenture stock, due April 2, 1950, principal and interest guaranteed by Province of British Columbia. The pledged collateral shows a substantial equity in value figured on a 6% income basis, which is well below current market prices. The bonds securing these notes are prior in lien to the following outstanding securities: \$61,679,000 4% perpetual con-

solidated debenture stock. \$25,000,000 5% income bonds. \$45,000,000 4% general mortgage bonds, guaranteed by Dominion of Canada. \$15,000,000 cash advances by Dominion of Canada, secured by mortgage for that amount. The Dominion of Canada owns \$40,000,000 of the outstanding \$100,000,000 C.N.R. capital stock."

Express Rates on Fruits from Oregon to Manitoba.

The Interstate Commerce Commission gave judgment at Washington, D.C., recently in the case of C. H. Robinson Co. vs. American Express Co., et al, as follows: Complainant is a corporation engaged in buying and selling fruits and berries, with its principal place of business at Grand Forks, N.D. It alleges that the rate of \$2.50 per 100 lbs. charged by defendants for transportation of fruits and berries in carloads from Hood River, Ore., to Winnipeg, Brandon, and Portage la Prairie, Man., is unreasonable and unjustly discriminatory to the extent that it exceeds the rate of \$2 per 100 lbs. applicable on like traffic to the same destination from White Salmon, Wash. Reparation is asked on 9 shipments that moved from Hood River to Winnipeg or Brandon during June, 1914.

Hood River is on the south bank of the Columbia River, 63 miles east of Portland, Ore.; White Salmon, on the north bank of the Columbia River, directly opposite. Hood River is served exclusively by the American Express Co., which does not reach White Salmon or points in Manitoba, shipments from Hood River to points in Manitoba being carried by the American Express Co. to Spokane, Wash., and by the Northern Express Co., or the Great Northern Express Co. beyond. White Salmon is served by the Northern Express Co., which operates from that point into Manitoba.

Six of the shipments involved moved: American Express from Hood River to Spokane; Northern Express from Spokane to Winnipeg. Two shipments moved: American Express from Hood River to Spokane; Great Northern Express from Spokane to Winnipeg. One shipment moved: American Express from Hood River to Spokane; Great Northern Express to Brandon. Charges collected on the first six shipments were \$2,347.08 on 93,883 lbs., at a carload rate of \$2.50 per 100 lbs., minimum 15,000 lbs.; on the next two shipments, \$816.92 on 32,717 lbs.; on the last shipment \$385 on 15,400 lbs. The

following statement offered by defendants shows the rates in effect on fruits and berries in carloads from Hood River to Winnipeg and Brandon during the period from 1912 to the time of the hearing:

TO WINNIPEG.	
Apr. 22, 1912	\$2.25
Mar. 8, 1914	2.50
July 2, 1914	2.25
Jan. 1, 1915	2.50
TO BRANDON.	
May 22, 1912	\$2.25
Feb. 1, 1914	3.60
May 23, 1914	3.10
June 4, 1914	2.50
July 2, 1914	2.25
Jan. 1, 1915	2.50

The \$3.60 rate to Brandon, effective Feb. 1, 1914, and the \$3.10 rate, effective May 23, 1914, were based on the rates to and from Spokane, but the other rates shown were joint through rates. Prior to June 20, 1914, there were no carload rates on fruits and berries from Hood River to Portage la Prairie. A carload rate of \$2.50 was established on that date, which was reduced to \$2.25 July 2, 1914, but which was restored Jan. 1, 1915. The rate applicable on fruits and berries in carloads from White Salmon to the points of destination involved and other points in Manitoba when the shipments in controversy moved was \$2, which rate was applicable to Winnipeg by way of the Northern Express or by way of the Northern Express to Spokane and the Great Northern Express beyond.

Defendants state that the lower rates applicable from Hood River prior to the establishment of the rate attacked were unreasonably low; that the traffic from Hood River had not been bearing its proportionate share of expense; and that it was necessary, in attempting to recoup the losses sustained by reason of our decision in re Express Rates, Practices, Accounts, and Revenues, 24 I.C.C., 380, relative to less than carload rates, to raise rates not found unreasonable in that case to a reasonable level. The traffic from White Salmon can reach points in Manitoba over a single line, and in practically all instances moves over but one line, whereas like traffic from Hood River to the same points must move over two lines, and entails besides switching and inspection costs at Spokane.

Subsequently to the hearing on April 20, 1915, the rate from Hood River to Brandon was reduced to \$2.25, while the rate from White Salmon for a two line haul was increased to \$2.25. On May 22, 1915, the rate from Hood River to Winnipeg and Portage la Prairie was also reduced to \$2.25 at the same time that the rate from White Salmon for a two line haul was increased to \$2.25. All of these rates are still in effect, as is also the Northern Express Co.'s \$2 rate to Winnipeg and other points in Manitoba. The rates to Chicago from Hood River and White Salmon are the same, whether the

hauls involved are single or multiple line. Complexity of route is also disregarded in the rates from Hood River to numerous other points both in the East and in the West and in the rates from White Salmon to numerous destinations.

We find that the rate assailed was, and for the future will be, unreasonable to the extent that it exceeded a rate of \$2 per 100 lbs.; that the shipments were made as described and paid for at the rate herein found to have been unreasonable; that all of the shipments were made by the Fruit Growers' Association of Hood River, Ore., and that the charges collected on the shipments to Winnipeg were paid by the Bright & Emery Co., the consignee, while the charges on the shipment to Brandon were paid by the Pioneer Fruit Co., the consignee at that point, and that both consignees have assigned their interest in the claims to complainant.

Conference rule 362 provides as follows: "In awarding reparation the commission will recognize an assignment by a consignor to a consignee or by a consignee to a consignor, but will not recognize an assignment to a stranger to the transportation records."

So far as appears, complainant was a stranger to defendants' transportation records relative to the shipments, and therefore is not entitled to any reparation that may be due. An appropriate order will be entered.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates of orders, immediately following the numbers, are those on which they were drawn.

25079. June 16.—Authorizing C.P.R. to build spur for Baker & Betcherman, Gloucester Tp., Ont.

25080. June 17.—Authorizing C.P.R. to build undercrossing of highway on regular road allowance on east boundary sec. 36-8-4, w.3.m. mileage 19.9, Shaunavon Subdivision, Alta., and amending order 18266, Dec. 9, 1912.

25081. June 17.—Authorizing C.P.R. to build its Gleichen Subdivision across road allowance on east boundary of Sec. 21-22-25, w.4.m. Alta., at mileage 14.75, and amending order 18669, Feb. 12, 1913.

25082. June 17.—Suspending proposed cancellation of rates on copper commodities from Smelter, Grand Forks, and Greenwood, B.C., to points in Eastern Canada, as shown in C.P.R. tariff, C.R.C. no. W2147, effective June 18, and ordering C.P.R. to continue rates as contained in its tariff C.R.C. no. W2056, until further notice.

25083. June 17.—Authorizing City of Toronto to build overhead crossing of C.P.R. Queen's Wharf Branch, east of Strachan Ave.

25084. June 19.—Authorizing C.P.R. to build spur from mileage 28.5 Kootenay Central Subdivision, B.C., northeasterly into Lot 129, 770 ft.

25085. June 19.—Authorizing C.P.R. to build spur connecting its Lac du Bonnet and Bergen Northeast branches in Lots 56 to 58, Kildonan Parish, Man.

25086. June 20.—Amending order no. 25015, May 29, 1916, re Canadian Northern Ry. road diversion between Secs. 22 and 23-9-21, w.p.m.

25087 to 25089. June 19.—Approving agreements between Bell Telephone Co. and three telephone companies.

25090. June 19.—Approving bylaw 11 of the Brandon, Saskatchewan and Hudson Bay Ry.

25091. June 21.—Relieving Toronto, Hamilton & Buffalo Ry. from maintaining watchman at crossing of Ancaster Road, Ancaster Tp., Ont.

25092. June 20.—Approving Canadian Northern Ry. plan 291-0, Montreal, March 1, showing station building to be erected at Charlesbourg West, Que.

25093. June 21.—Ordering C.P.R. to lower culvert at public road at east side of track 18 ins., clean out borrow ditch, and repair farm crossing through Lot 5, Con. 3, Ops Tp., Ont.

25094. June 21.—Approving Nelson & Fort Sheppard Ry. bylaw 16, May 16.

25095. June 23.—Authorizing Esquimalt & Nanaimo Ry. to rebuild subway at mileage 6.

25096. June 22.—Authorizing C.P.R. to build spur at mileage 4.8 Smiths Falls Subdivision, Ont., for W. Fraser, Dorval, Que.

25097. June 20.—Approving plan, etc., of Cahill drain, to be built under Michigan Central

and Pere Marquette Rds., in Aldborough Tp., Ont. 25098. June 23.—Approving agreement between Bell Telephone Co. and Mink Rural Telephone Co., June 9.

25099. June 23.—Authorizing Canadian Northern Ry. to rebuild bridge over Vermilion River, at Dauphin, Man.

25100. June 23.—Authorizing C.P.R. to build road diversion in s.w.¼ Sec. 4-18-18, w.2.m., and builds its Pilot Butte ballast pit spur across same at grade.

25101. June 24.—Approving Bedlington & Nelson Ry. bylaws 42 and 43, June 12, and rescinding orders 15437 and 3286, Nov. 22, 1911, and July 16, 1907, respectively.

25102. June 26.—Authorizing Canadian Northern Ontario Ry. to build spur for Lauder, Spears & Howland, at mileage 198.69 from Toronto, in part of Lots 21 and 22, Cons. 5 and 6, Mowat Tp.

25103. June 26.—Authorizing Canadian Northern Ry. to cross and divert highway in s.e.¼ Sec. 29-30-3, w.3.m., Sask.

25104. June 26.—Authorizing Saskatchewan Highway Commissioners to build highway over C.P.R. at Belbeck Siding, on blind line north of Sec. 30-17-26, w.2.m., Sask.

25105. June 26.—Authorizing James Bay & Eastern Ry. to build spur for New York and Dominion Corporation at mileage 3.67 from Roberval, Que.

25106. June 26.—Approving agreement between Bell Telephone Co. and Rosedale Rural Telephone Co., June 15.

25107. June 27.—Authorizing G.T.R. to build siding across Hanna and Atlantic Aves., Toronto.

25108. June 24.—Approving Red Mountain Ry. bylaws 14 and 13, June 12, and rescinding order 3288, July 16, 1907.

25109. June 24.—Ordering Grand Trunk Pacific Ry. to fence certain portions of its right of way between Tete Jaune and Legrand, B.C., by Aug. 31, and rescinding order 24386, Oct. 25, 1915, in so far as it exempts company from fencing its line between mileage 1140.2 and 1142.5.

25110. June 27.—Approving character of work to be done by Minto Tp., Ont., on drain under G.T.R. on Lot 11, Con. 9.

25111. Authorizing Canadian Northern Ontario Ry. to connect with C.P.R. near Chaudiere Jet., Ont., and rescinding order 7490, July 6, 1909, in so far as it refers to connection with Ottawa & Prescott Ry. at mileage 56.6 west of Hawkesbury.

25112. June 30.—Authorizing C.P.R. to open for traffic its line from Simcoe to G.T.R. right of way in Port Dover, Ont., mileage 43.3 to 50.15.

25113. June 30.—Relieving C.P.R. from providing further protection at Thurlow crossing, near mileage 89, Trenton Subdivision, Ont.

25114. June 27.—Authorizing G.T.R. to build additional railway siding and spur for the city's John St. pumping station, Toronto.

25115. June 28.—Approving revised layout of C.P.R. mechanical interlocking plant at crossing at Murdock, Man.

25116. June 28.—Authorizing C.P.R. to build extension to Boake Mfg. Co.'s siding for Harry Webb Co. Ltd., Toronto.

25117. July 3.—Approving location Edmonton, Dunvegan & British Columbia Ry. through Tps. 74 to 71, R. 5 and 6, w. 6 m., Alta., mileage 25.51 to 50.19.

25118, 25119. June 30.—Approving Atlantic, Quebec & Western Ry. bylaw, May 24; and Quebec Oriental Ry. bylaw, May 22.

25120. July 3.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to open for traffic from mileage 287 to 357, Alta., speed of trains limited to 15 miles an hour.

25121. June 28.—Authorizing Canadian Northern Ontario Ry. to build spur for Hawkins Bros., Parry Sound, Ont.

25122. June 30.—Ordering G.T.R. to stop Delaware & Hudson Co.'s train 209 at Stottsville, Girard and Grande Ligne, Que., on Sundays; shipments of milk for Montreal to be picked up and carried by it.

25123. June 30.—Authorizing C.P.R. to build spur for Canada Cycle & Motor Co. in York Tp., Ont.

25124. July 3.—Approving Edmonton, Dunvegan & British Columbia Ry. standard mileage freight tariff, C.R.C. 20.

25125. June 30.—Authorizing Point Grey municipality to extend Oak St. across Vancouver & Lulu Island Ry. and Cedar Lumber Co.'s spur.

25126. July 3.—Ordering G.T.R. for 3 months from July 8, to stop local trains in and out of Montreal at Brussy's crossing, and to keep count and report to Board at end of each month, number of passengers using trains each way.

25127. June 7.—Authorizing C.P.R. to build spurs for Morrison Quarry Co., near Angus shops, Montreal.

25128. June 29.—Authorizing Quebec Government to build public highway over Canadian Northern Ry. on Lot 3, Deschambault Cadastral.

25129. Ordering that Dorchester St., Quebec, Que., be protected by gates, operated by day and night watchman; gates to be installed by Sept. 1, 1912, re special rates for mining students, etc. grade crossing fund, balance and cost of maintenance equally by C.P.R. and Quebec City.

25130. June 29.—Dismissing City of Montreal's application for order modifying profile of Lachine, Jacques Cartier & Maisonneuve Ry. between Hochelaga St. and Cote St. Michel Road, and amending orders 13993 and 15776 to embody modifications asked for.

25131. July 4.—Rescinding order 16056, March 1, 1912, re special rates for mining shipments, etc.

25132. July 4.—Authorizing Harrison, Man., to make highway over C.P.R. at point A in s.e. ¼ Sec. 8-16-20 w.p.m.

25133. July 4.—Approving Yarmouth Tp., Ont., plans and specifications of Copeland Drain under London & Port Stanley Ry.

25134. July 4.—Authorizing G.T.R. to build addition to bridge at Margaret St., Berlin, Ont.

25135. July 4.—Authorizing local improvement district 396, Alta., to make highway over Canadian Northern Ry. between secs 18 and 19-40-18, w. 4. m.

25136. July 7.—Authorizing Canadian Northern Ry. to build spur for Turner Lumber & Pulpwood Co. at mileage 125.93, Chicoutimi Subdivision, Que.

25137. July 7.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to build across certain highways on its Grand Prairie Branch, mileage 25.51 to 50.19, Alberta.

25138. July 7.—Approving proposed connection between new switching lead to be built by Canadian Car & Foundry Co., Ltd., on Montreal Park & Island Ry. property, north of River St. Pierre and G.T.R., at Turcot, Que.

25139. July 8.—Relieving Quebec, Montreal, & Southern Ry. from providing further protection at Grand Caroline crossing, between Rougemont and St. Dumas stations.

25140. July 7.—Ordering Grand Trunk Pacific Ry. to install at Peterson, Sask., a box car body for waiting room and freight shed; and to make small cinder platform; work to be done by Aug. 5.

25141. July 8.—Extending to June 15, 1917, time within which half-interlockers are to be installed at Victoria Ave. and Franklin St., Fort William, Ont., conductors to flag cars over crossings.

25142. July 7.—Approving Montreal Tramways Co.'s plan of additions to interlocking plant at crossing of G.T.R. at Little St. James St., Montreal.

25143. July 7.—Amending item on page 9 of Supplement 5 to Canadian Freight Classification 16, giving specifications for cheese boxes as follows,—paragraph (a): Add at end of paragraph the words, "or four pieces if tongued and grooved."

25144. July 10.—Authorizing C.P.R. to open for traffic its Stirling-Weyburn Line from Foremost to Pokowki, mileage 49.2 to 71.7; speed of train not to exceed 20 miles an hour.

25145. July 7.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur, with offshoot for Dominion Steel Foundry Co., Hamilton, Ont., and approving clearances.

25146. July 7.—Approving plans and specifications of Logan-Maitland drain, to be built under C.P.R. on Lots 18 and 19, Con. 18, Elma Tp., Ont.

25147. July 11.—Authorizing C.P.R. to build two spurs for Energit Explosives Co., Lot 10, Con. 2, Horton Tp., Ont.

25148. July 12.—Authorizing G.T.R. to build extension to spur for Toronto Harbor Commissioners, in industrial district at dock 1.

25149. July 12.—Authorizing G.T.R. to build two spurs for The Ham & Nott Co., Brantford, Ont.

25150. July 10.—Exempting Esquimalt & Nanaimo Ry. from fencing certain portions of its right-of-way from mileage 2.5 to 31.8, Port Alberni Branch, B.C.

25151. July 12.—Relieving G.T.R. from providing further protection at first public highway crossing just east of Bothwell station, Ont.

25152. July 12.—Authorizing G.T.R. to build extension to spur for Canadian Bag Co., Toronto.

25153. July 13.—Authorizing C.P.R. to build switching track for Wayagamack Pulp & Paper Co., Bellerive Island, Que.

25154. July 13.—Ordering Canadian Northern Ry. to appoint station agent at Dropmore, Man., during Sept., Oct., Nov. and Dec.; if agent is not retained after that C.N.R. to arrange to keep building clean and heated for arrival and departure of passenger trains.

25155. July 13.—Authorizing Canadian Northern Ry. to rebuild bridge at crossing of Ste. Anne River at St. Raymond, Que.

25156. July 13.—Approving agreement between Bell Telephone Co. and Horton & McNab Telephone Association, June 9.

25157. July 14.—Declaring that crossing of highway known as Double Road, or French Road, by G.T.R., west of Vaudreuil station, Que., is protected to Board's satisfaction.

25158. July 13.—Extending 60 days from date time within which C.P.R. shall install bell at crossing two miles south of Brampton, Ont., known as second line west.

25159. July 13.—Authorizing Canadian Northern Ry. to build spur for Vegreville Milling Co. & Imperial Oil Co. Ltd., Vegreville, Alta.

25160. July 14.—Authorizing G.T.R. to build siding for Canada Forge Co., Welland, Ont.

25161 to 25163. July 13.—Approving agreements between Bell Telephone Co. and three telephone companies in Ontario.

25164. July 13.—Authorizing Kettle Valley Ry. to cross Canadian Northern Pacific Ry., pending installation of interlocking plant at Hope, B.C., all trains to be flagged over crossing by flagman appointed by C.N.P.R. at expense of K.V.R.; interlocking plant to be installed by Sept. 1.

25165. July 13.—Approving clearances on C.P.R. spur track 3 to North Pacific Lumber Co. on a trestle built through part of Burrard Inlet at Barnett, B.C.

25166. July 7.—Authorizing G.T.R. to build siding across Redan St., St. Thomas, Ont.

25167. June 25.—Authorizing Canadian Northern Ry. to extend spur across Avenues 106 to 112, north of Portage Ave., Edmonton, Alta., until Nov. 1.

25168. July 13.—Ordering Campbellford Lake Ontario Western Ry. (C.P.R.) to build farm crossing at station 1570, Hinchinbrooke Tp., in accordance with regulations, by Aug. 15.

25169. July 18.—Authorizing Canadian Northern Ontario Ry. to open for traffic its line from junction with Mount Royal Tunnel & Terminal Co.'s tracks, near St. Laurent, Que., to junction with C.N.O.R. near Grenville, Ont.

25170. July 18.—Authorizing Lake Erie & Northern and G.T.R. to operate over crossing at Simcoe, Ont., without first stopping; man in charge of interlocking plant to be appointed and paid by L. E. & N.R.

General order 168. July 11.—Ordering railway companies west of Montreal, subject to Board's jurisdiction, to carry desiccated vegetables in carloads to Montreal for export at domestic rates to Montreal, with addition of terminal charge at Montreal not to exceed 6/10 of 1c per 100 lbs., whenever said combination is less than rate of published export tariff.

Government Directors of Railways.

In accordance with legislation passed at the Dominion Parliament's last session, the Dominion Government has appointed the following directors for the Canadian Northern and Grand Trunk Pacific Railways respectively.

Canadian Northern—W. J. Christie, Winnipeg; W. K. George, Toronto; H. W. Richardson, Kingston.

Grand Trunk Pacific—J. B. Fraser, Ottawa; Jules Hone, Montreal; Peter McAra, Regina.

W. J. Christie is a Winnipeg real estate dealer.

W. K. George, of Toronto, was born at Kingston, Ont., in 1861, the son of the late Rev. Dr. James George, Principal of Queen's University, and was educated at Galt Collegiate Institute and Toronto University. He began business in Manitoba in 1882, and later went to Chicago, where he engaged in manufacturing. He returned to Toronto after seven years, and has been actively engaged in business there ever since. He is President of the Standard Silver Company, President of the Canada Bond Corporation and President of the London and Lake Erie Transportation Co., Vice President of the Sterling Bank and a director in a number of other corporations. He has been President of the Canadian Manufacturers' Association, President of the Canadian National Exhibition Association, and is a governor of Toronto University, Commissioner for Ontario of the Boy Scouts and an esquire of the Order of St. John of Jerusalem.

H. W. Richardson, of Kingston, Ont., is head of the firm of James Richardson & Sons, grain merchants and ship owners, Vice President of the Great Lakes Transportation Co., and is a member of the Montreal, Toronto, Winnipeg, and Calgary Boards of Trade. He has served as an alderman, and as President of the Board of Trade. He was the first President of the Kingston Canadian Club.

J. B. Fraser is an Ottawa lumber merchant.

Jules Hone was born at Montreal, Sept. 8, 1874, and entered C.P.R. service in the Car Accountant's office, Montreal, Mar. 14, 1889, and from July, 1890, to Aug., 1891, was secretary to the Manager of Transportation, Montreal; Aug., 1891, to the summer of 1892, in city ticket office, Montreal; 1892 to July 4, 1893, chief clerk, city ticket office, Montreal; June 21, 1896, to Nov. 1, 1903, ticket agent, Windsor Hotel, Montreal; Nov. 1, 1903, to 1906, city passenger, freight and steamship agent, Quebec, Que.; 1906 to Apr., 1911, City Passenger and Ticket Agent, Quebec. On leaving the C.P.R. service he opened a steamship and general ticket agency, in partnership with L. J. Rivet, in Montreal, with a branch office in Quebec.

Peter McAra is head of the firm of McAra Bros. & Wallace, financial, insurance and real estate agents, Regina, Sask.

Railway Finance Meetings, Etc.

Central Ry. of Canada.—A meeting of bondholders has been called to be held in London, Aug. 17, to consider the scheme of arrangements between the Central Ry. Co., of Canada and its creditors which was filed by the company in the Exchequer Court of Canada in May, 1916, and to consider what steps should be taken for protecting and enforcing the security for the bonds, and if thought fit to pass all necessary resolutions requesting the trustees for the bondholders to declare the principal of the bonds to be due and to enforce the security for the bonds by the appointment of a receiver or otherwise, and to appoint a committee to represent the bondholders and to confer on such committee all such powers and authorities as may be thought expedient. The meeting is called by the City Safe Deposit and Agency Co., as trustee under the provisions of the trust deed and at the request of the bondholders.

Central Ry. of Canada. It is proposed that bondholders shall hold all interest coupons overdue and those to become due, until Jan. 21, 1921, when they will receive first mortgage bonds for the total amount of the coupons. The creditors will be paid in 6% income bonds, interest being dependent on earnings after meeting interest on the first mortgage bonds. Shareholders will receive no dividends until the holders of the first mortgage bonds have received full payment of their interest for three consecutive years. All cash subsidies received up to Jan. 1, 1921, will be used for construction and equipment of the line, and all subsidies received after that date will go to meet interest on the first mortgage bonds.

Great Northern Ry. and Mining Co.—The Nova Scotia Government has cancelled this company's certificate of registration. The company's property was sold in January, under a judgment to the Banque Nationale's General Manager, who was said to be acting on the bondholders' behalf. The company carried on some mining operations on Cape Breton Island, N.S., and had power among other things to build a railway, but it did not exercise it.

Temiscouata Ry. Net earnings for April, \$3,797, and aggregate net earnings from July 1, 1915, to Apr. 30, \$28,143.

Rogers Pass Tunnel, Canadian Pacific Railway.

We are advised by J. G. Sullivan, M. Can.Soc.C.E., Chief Engineer, Western Lines, C.P.R., Winnipeg, that the progress in connection with the Rogers Pass tunnel from Mar. 30, was 5,547 ft., and the total progress 5 miles, the drilling being completed on July 6.

The Duke of Connaught, Governor General, accompanied by the Duchess and Princess Patricia, were taken through the tunnel, which is rapidly approaching completion, on a special car, July 18. On the car reaching the western portal, the Duke named the tunnel "The Selkirk." The C.P.R. was represented by Grant Hall, Vice President and General Manager, Western Lines, and J. G. Sullivan, Chief Engineer, Western Lines; A. C. Dennis, M. Can.Soc.C.E., Superintendent for the contractors, Foley, Welch & Stewart, represented them.

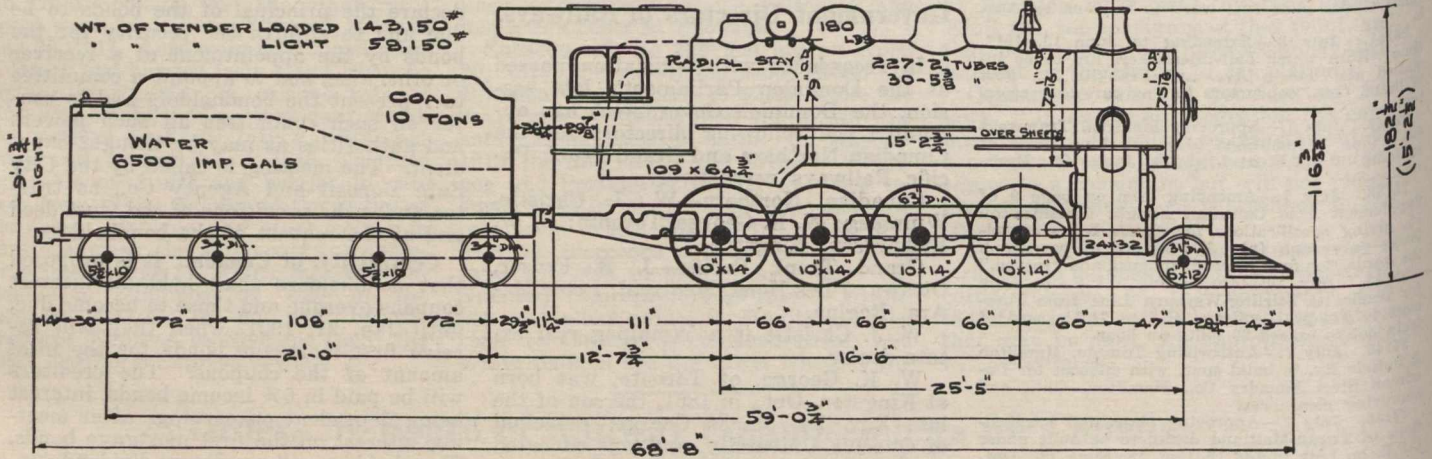
Locomotives for Canadian Government Railway.

The Canadian Government Railways have received recently 15 heavy 2-8-0 class locomotives from Canadian Locomotive Co., Kingston, Ont. No special feature are comprised in them, outside the railways' standard practice. The boiler is of the extended wagon top type, and is 72 in. in diameter at the front end, and 79 in. at the largest course. The barrel is fitted with 2 in. and 5 3/8 dia. tubes, 15 1/4 ft. over tube sheets, and has a 30 unit, Locomotive Superheater Co.'s head-

from Canadian Locomotive Co., for delivery in time for handling the autumn crop movement. They will comprise many features which are new to Canadian railways, the specialties including: Tate flexible staybolts, Locomotive Superheater Co.'s latest type of superheater, two 5,000 gallon capacity injectors, four 3 in. safety valves, fire brick arch, vanadium cast steel frames, metallic packing, crossheads of two bar alligator type, Walschaert valve gear, Casey-Cavin power reverse gear, relief valves, Franklin hard grease driving box cellars, Franklin automatic fire door, trailing truck of radial bar type with outside

Combined Railway and Steamship Bill of Lading.

D. H. Ross, Canadian Trade Commissioner at Melbourne, Australia, in reporting to the Trade and Commerce Department at Ottawa recently, said: "Of all the objectionable shipping documents transmitted to Australian importers by Canadian exporters of goods and products, the combined Railway and Steamer Bill of Lading easily takes first place. Prior to the war, the use of such documents was not general, but in recent months it has been the rule rather than



Consolidation Locomotive, Canadian Government Railways.

er. The fire box is 64 3/4 x 109 in., and there are power operating grate shaker, radial buffers between engine and tender, self centering valve stem guides and extended piston rods. The general dimensions, etc., are as follows:

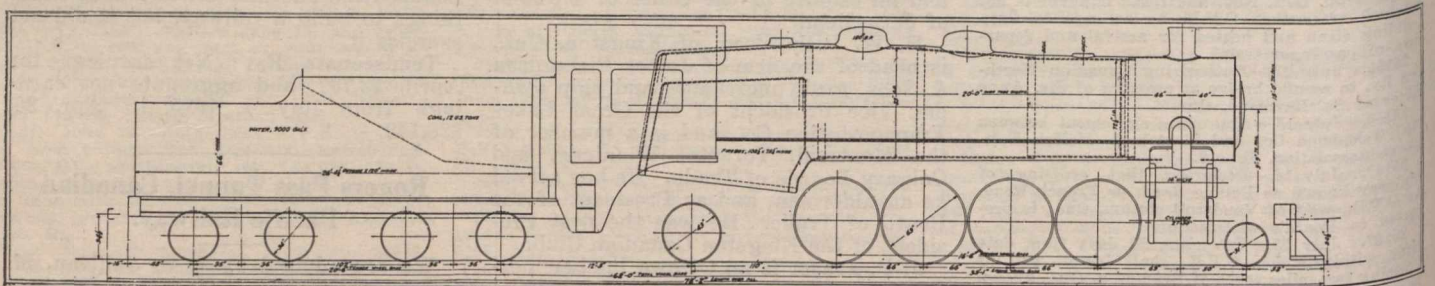
- Weight on drivers203,700 lbs.
- Weight in working order, total231,800 lbs.
- Wheel base, rigid16 ft. 6 ins.
- Wheel base, total25 ft. 5 ins.
- Wheel base, engine and tender69 ft. 11 ins.
- Heating surface, firebox189.51 sq. ft.
- Heating surface, tubes2,436 sq. ft.
- Heating surface, total2625.5 sq. ft.
- Driving wheels, diam.63 ins.
- Driving wheels, materialCast steel.
- Driving journals10 by 14 ins.
- Cylinders, diam. and stroke24 by 32 ins.

beams, vestibule type of cab, Detroit 5-feed lubricators, incandescent headlight with latest type of turbo-generator, radial buffers between engine and tender, cast steel cradle at rear end of frame, Canadian Locomotive Co.'s injector checks on top of boiler, pedestal type of tender box, Westinghouse special strainer and 8 1/2 in. cross compound air pump. The principal dimensions are as follows:

- Weight in working order on drivers.....213,500 lbs.
- Weight in working order, total283,000 lbs.
- Wheel base of engine, rigid16 ft. 6 ins.
- Wheel base of engine, total35 ft. 1 in.
- Wheel base of engine and tender68 ft.
- Heating surface, firebox242 sq. ft.
- Heating surface, tubes3,398 sq. ft.

the exception. So grievous is the discontent, amongst importers of made in Canada goods, that representations have been made to the effect that the Canadian Government should be approached with the view of enacting legislation to make it an offence for railways in the Dominion to issue a document so detrimental to the material interests of manufacturers and exporters, as the combined bill of lading."

Enquiry goes to show that the Trade Commissioner has got unduly excited or does not understand the subject. Canadian Railway and Marine World is officially advised that the Trade and Commerce Department has done nothing in



Mikado Locomotive, Canadian Government Railways.

- Boiler, typeExtended wagon top, radial stay.
- Boiler pressure180 lbs.
- Tubes, no. and diam.227, 2 ins.; 30, 5 3/8 ins.
- Tubes, length15 ft. 2 3/4 ins.
- Injectors and safety valveLocomotive type.
- BrakesWestinghouse American.
- PackingMetallic.
- SuperheaterLocomotive Superheater Co., Schmidt Type A.
- Valve gearWalschaert.
- Weight of tender, loaded140,000 lbs.
- Tank capacity6,500 Imp. gals.
- Tank, typeWater bottom.
- Coal capacity10 tons.
- Tender truckOutside equalized.
- Tender wheels34 ins. diam.
- Wheels, typeCast steel centre, steel tired.
- Truck journals5 1/2 by 10 ins.
- Brake beamsSteel I section.

Canadian Government Railways have ordered 30 Mikado (2-8-2) locomotives

- Heating surface, total3,640 sq. ft.
- Driving wheels, diam.63 ins.
- Driving wheel centresCast steel.
- Driving journals, diam. and length, Main 11 by 20 ins.; others, 10 by 20 ins.
- Cylinders, diam. and stroke27 by 30 ins.
- Boiler, typeExtended wagon top, radial stay.
- Boiler pressure180 lbs.
- Tubes, no. and diam.240, 2 ins.; 32, 5 3/8 ins.
- Tubes, length20 ft.
- Grate area56.5 sq. ft.
- Weight of tender loaded166,000 lbs.
- Tank capacity, water9,000 U.S. gals.
- Coal capacity12 tons.
- Tank, typeWater bottom, with vestibule connections.
- Truck, typePedestal equalizer.
- Wheel, outside diam.34 ins.
- Wheel, typeCast steel centre, retaining ring and steel tires.
- Journals, diam. and lengthM.C.B., 6 by 11 ins.
- Brake beamHigh speed, with M.C.B. heads.

the matter except to try and ascertain the facts. The Department has been told by some Canadian manufacturers that they prefer the combined railway and steamship bill of lading. The C.P.R. traffic management states that it is quite immaterial to the railway companies whether through bills of lading or local bills of lading are issued. The through bills are issued on shippers' demand.

The G.T.R. was reported recently to be enquiring for about 50,000 tons of steel rails for 1917 delivery. We are officially advised that the management has not decided on 1917 requirements and that no enquiries are out.

Railway Development, Projected Lines, Surveys, Construction Betterments, Etc.

The Bras d'Or Coal Co. has been incorporated under the Dominion Companies Act to carry on coal mining operations, and to own and operate railways, switches, wharves, docks, etc. The company's authorized capital is \$45,000, and its office is in Montreal. The provisional directors are: H. A. Lovett, K.C.; G. W. Cole, N. Scheach, and P. F. Brown, all of Montreal.

Burrard Inlet Tunnel and Bridge Co.—At a meeting of directors in North Vancouver, July 9, it was reported that everything was being done to keep matters in such a condition that as soon as a favorable opportunity arrived for financing construction, advantage might be taken of it. The annual meeting of the shareholders—who represent various municipalities—will be held Sept. 4. (Feb., pg. 51.)

The directors have sent a letter to all the cities and municipalities which hold stock in the company asking them to ascertain from their solicitors whether it would be legal to rescind a resolution passed by the directors in Feb., 1915, by which a contract for the construction of the Second Narrows bridge was let to C. A. P. Turner and the Western Foundation Co.

Edmonton, Dunvegan & British Columbia Ry.—A press report states that the general contract for the 54 mile extension of the main line from Spirit River to the B.C. Block, Alta., has been let to McPherson & Quigley, Edmonton, who have let subcontracts to W. T. Craig, G. Webster, T. Timothy, F. V. Riley and A. McGregor. The general contractors will do part of the grading themselves. This mileage is expected to be completed this year. (July, pg. 281.)

We are officially advised that a subsidy contract has been entered into between the Railway Department and the Company for the construction of a branch line from near Spirit River to and through the Grande Prairie district, Alta., not to exceed 60 miles. Track laying was completed on this branch Mar. 29, and ballasting and finishing up work is nearly done.

The Grand Trunk Ry. started July 1 relaying sections of the line between Toronto and Hamilton with new 100 lb. steel rails. The gangs are working from the Hamilton end.

We are advised that nothing will be done at present regarding the erection of new coal chutes at London, Ont.

A press report states that the company contemplates carrying out some extensive improvements at its Detroit, Mich., freight terminals. The plans are said to call for the building of an inbound freight house, 60 x 731 ft.; an outward freight house, 38 x 160 ft.; with house tracks and paved team tracks, cost \$328,000; new classification yard in Hamtramck district, \$281,000; second passing track eastward in Milwaukee district, \$85,000; rehabilitating of Avery Ave. team tracks and pavements, paving of Twombly Ave. team tracks, paving of team tracks at Ferry Ave., Farnsworth and Dequindre St., north of Gratiot Ave., \$120,000; constructing grades on line leading to West Detroit west of Woodward Ave., \$116,000. (July, pg. 281.)

Great Northern Ry.—A contract has been let, a press report states, to A. Guthrie & Co., St. Paul, Minn., for the completion of the line between Kingard, B.C., and Sumas Landing. This is an

extension of the company's Abbotsford line, and is being built to secure better connections between sections of the company's lines. (July, pg. 281.)

Intercolonial Ry.—In connection with the new terminal railway under construction at Halifax, N.S., a new traffic bridge has been constructed over the cut where it crosses South St. It is a timber structure, and will remain in use until the permanent concrete structure has been erected. Satisfactory progress is reported to have been made on other parts of this line.

Tenders will be received to Aug. 7 for the construction and erection of a passenger station at Halifax, N.S., as part of the Halifax ocean terminals.

The flour shed at Smythe St., St. John, N.B., was destroyed by fire July 1, the loss being estimated at \$75,000. It is reported that the shed will be rebuilt at an early date. (July, pg. 281.)

Kettle Valley Lines.—The section of the line through to Hope, B.C., where a junction is effected across the Fraser River with the C.P.R. transcontinental line, has been completed, and a through train service was put in operation July 31 by the C.P.R., which has leased the line, extending from Midway to Hope, with a number of branches, one running into Republic, Wash., the others serving Grand Forks and Merrit, by the latter of which connection is made with the C.P.R. at Spence's Bridge. By a joint arrangement with the Vancouver, Victoria & Eastern Ry. (Great Northern), that company's tracks are operated over through Princeton to the Coquihalla summit, and the V. V. & E. Ry. operates over the K. V. Lines' tracks, down the valley to Hope. About the last piece of construction completed on the line was the bridge at Ladner Creek, 20 miles west of the Coquihalla summit, and 38 miles east of Hope. It is about 600 ft. long, and the rail level is 230 ft. above water level. (June, pg. 223.)

Michigan Central Rd.—With reference to press reports as to a probable removal of the company's terminals from Courtright to Sarnia, mentioned in our last issue, we are officially advised that there is no intention to make any such change.

Respecting the bridge work being done at Bear Creek, we are officially advised that the company is taking out an old truss span structure at mileage 1.25 on the Petrolea Branch, and replacing it with steel girders on concrete piers. The work is being done by the company's own forces, and will not cost anything like the \$60,000 which, according to the report, was the estimated cost. (July, pg. 281.)

National Transcontinental Ry.—Tenders are under consideration for the construction of reinforced concrete foundations on wood or concrete piles for a 1,000,000 bushel storage grain elevator, working house and track shed at Transcona, Man. (July, pg. 281.)

Pacific Great Eastern Ry.—A press report states that \$2,000,000 of the British Columbia Government loan of \$6,000,000 to the company, authorized by the act passed last session, have been sold at 91½, and that the money is in hand for construction purposes.

A press report states that construction has been resumed on various portions of the line between Clinton and Fort George. There is about 26 miles of grading to be completed to connect up the already finished sections, the heaviest work being

near the Horse Lake Summit, and there are three large bridges to be built over Deep Creek. The question of labor is bothering the contractors, who require 1,500 men to carry out the work planned for the year, viz., to complete grading and track laying from Clinton to Quesnel, 185 miles. (July, pg. 282.)

The North Vancouver City Council on July 12 decided to renew the lease of the Y at Chesterfield Ave., to the P.G.E. Ry. for 5 years, from Mar. 1915, when the former lease expired. The company's representative stated that it is proposed to establish a car ferry service between North Vancouver and Vancouver, and between North Vancouver and Squamish.

Quebec Bridge.—It is reported that Sept. 26 is the day set for the floating into position of the span to connect the ends of the north and south cantilevers of the bridge across the St. Lawrence River at Quebec. The span is being built on specially constructed scows, which will be floated into position on the rise of the tide, reaching the bridge at high water. The operation of settling the span in position is expected to occupy about an hour. The operation, at any time, is a difficult one, but with a span of the size of the present one, to be put in place where there is such a current as in the St. Lawrence, it is an operation of the utmost delicacy and difficulty. The failure of one man to do his appointed work at the exact time may mean the failure of the job, and its postponement until suitable tidal conditions again prevail. (July, pg. 282.)

A press report, July 18, stated that work was temporarily suspended on this structure owing to the discovery that the cables supporting a part of the structure on the south side had been cut. This has not been confirmed.

A Montreal press dispatch says that the St. Lawrence Bridge Co., a subsidiary company of the Dominion Bridge Co., and of the Canadian Bridge Co., formed for the construction of the Quebec Bridge, is running nearly a year ahead of contract time on the work, which will be concluded this year. In this running ahead of contract, the company is able to save a large amount of money in keeping down overhead expenses. It also means it will be able to redeem the large deposit made to the Government on the work and thus secure a year's interest upon it. Dominion Bridge's share of the profits, it is said, will run between \$2,000,000 and \$2,400,000, as against previous estimates of slightly over \$1,000,000. The working company will be dissolved upon conclusion of the work, which has already extended over the better part of four years.

Quebec & Saguenay Ry.—A press report July 4 quotes Sir Rodolphe Forget as stating that this line will be completed to Murray Bay by November, and that construction would be gone on with at once.

We are officially advised that even if the line were to be transferred to the Government at once it is scarcely possible that it could be completed to Murray Bay by November. The whole matter as to when work will be started, what will be done, and everything else about the line is under consideration. It is impossible to say when the line will be transferred, and nothing can be said about the cost until the matter has been before the Court of Exchequer. (June, pg. 227.)

St. John & Quebec Ry.—Work has been started on the extension from Gagetown to Westfield, N.B., gangs of men being placed at work at Woodman's Point, and at the Westfield end of the Nerepis bridge.

The work on the section for which Poupore Bros. have the contract, was reported July 12 to be well in hand, several gangs being at work between Evandale and Oak Point. The work is reported to be about the heaviest on the extension. Progress is being made in seven large cuts. The firm's plant consists of 1 steam shovel, 2 donkey engines, 62 dump cars, and 85 tons of light railway track. (July pg. 280.)

Toronto, Hamilton & Buffalo Ry.—We are officially advised, in respect to the company's plans for the development at

Port Maitland, the terminus of the branch line from Smithville, the five mile section of which from Dunnville to Port Maitland is under construction, as follows: The ferry slip is located on the east side of the Grand River about 2,500 ft. from the piers, the yard tracks running parallel with what is known as the discharge of the Welland Canal feeder. Abreast the slip dock a turning basin is being dredged out this year. The slip dock is being constructed with two rows of 60 ft. piles, backed with 40 ft. arch webb steel sheet piling. A 50 ft. apron resting on a pile foundation is to be used as a bridge between the shore tracks and the ferry. The work of building the slip dock is being performed by the company's forces and will be completed about Sept. 1. (July, pg. 28.)

Freight and Passenger Traffic Notes.

The Grank Trunk Pacific Ry. has opened a passenger office at Skagway, Alaska.

The G.T.R. city passenger and ticket offices in Buffalo, N.Y., have been moved from 285 Main St., Elliott Square Building, to 5 South Division, Elliott Square Building.

The Board of Railway Commissioners, on July 3, approved standard mileage freight tariff C.R.C. 20 for the Edmonton, Dunvegan & British Columbia Ry., cancelling C.R.C. 1.

The Kent Northern Ry., under orders by the New Brunswick Government, has resumed a regular daily train service on its line from Kent Jct. on the Intercolonial Ry. to Richibucto. For some time the service had been restricted to four trains a week.

The Canadian Government Railways Passenger Department has issued a circular giving details of steamship services in Nova Scotia, New Brunswick, Prince Edward Island, Quebec and Ontario, connecting with its lines, for the current season. Particulars are given of 60 different routes.

The C.P.R. early in July started operating special trains for observation purposes between Banff and Field, on the Rocky and Selkirk Mountains. The trains have open top observation cars and are drawn by oil burning engines. They will be continued during August.

The Grand Trunk Pacific Ry. has opened passenger, freight and telegraph offices in the Grain Exchange Building, Calgary, Alta. H. Merritt, heretofore of Victoria, B.C., is city passenger and ticket agent, and W. Mewing is in charge of the freight business. Heretofore the company's business in Calgary has been attended to by Niblock & Tull.

The Esquimalt & Nanaimo Ry. has decided to grant the request of residents along the line for an additional Sunday train, but has altered the time of the return trip of the one train each way from Nanaimo, from 2.20 to 3.50 p.m., making the arrival at Victoria, 7.35 instead of 6.00 p.m.. This will be in effect until Aug. 13 only, after which the train will run as heretofore.

The G.T.R. is operating an autobus service from Port Hope to Cobourg, Ont., starting from the former place at 2 p.m., after the arrival of the train from the Kawartha Lakes district, and arriving in Cobourg, a distance of seven miles, in time for passengers to take the car ferry across Lake Ontario. The service will be continued daily except Sundays, until Sept. 4, after which it will be continued

to Sept 30 on Mondays, Thursdays, and Saturdays only.

The Grand Trunk Pacific Ry. has placed couriers on its steamships Prince Rupert and Prince George, on their Alaska route. Their special duties are the entertainment of passengers on the trips, the explanation of points of interest, historically and geographically, and the giving of information as to the manners, customs, and folk lore of the Indian population. The couriers accompany parties from the steamships who make trips over the White Pass and Yukon Ry.

The Lake Erie & Northern Ry. is in operation as an electric railway from Galt via Brantford to Port Dover, Ont., there being 10 trains a day each way on week days, and 7 trains each way on Sundays. The Sunday trains run to and from Concession St., Galt, only, instead of to and from Main St., the distance between these two points being a third of a mile. The C.P.R. short line fares from Toronto and points east, apply to Port Dover via Galt and all points on the L. E. & N. R.

The Kettle Valley Ry. was open for through traffic July 31, a train service being run from Nelson, B.C., on the C.P.R. to Vancouver, 511.9 miles. One train a day each way is being run, the mileage being as follows:—Nelson to Midway, C.P.R., 126.6 miles; Midway to Hope, K.V.Ry., 296.3 miles; Hope to Vancouver, C.P.R., 89 miles. A standard sleeping car is run between Nelson and Vancouver, a cafe car between Nelson and Penticton, and a dining car between Hope and Vancouver. Trains are also being run daily, except Sundays, between Brookmere and Merrit, Nicola and Merrit, and Merrit and Spences Bridge, at which point connection is made with the C.P.R. transcontinental line. By the opening of this new route the time occupied in making the trip between Nelson and Vancouver is reduced by 4½ hours.

130-lb. Rails—The Pennsylvania Rd. has ordered more than 100,000 tons of 130-lb rails. The only difference between the new section and the 125-lb. standard adopted by this road some time ago is in the addition of ½ in. of metal on the top of the head and 1-31 in. in the thickness of the web. This makes a total height of 6½ in., base width of 5½ in., width of head of 3 in., depth of head of 2 in., and web thickness of 11-16 in., as compared with the corresponding figures of 6¼, 6, 2 15-16, 1 27-32 and 21-32 in. for the 130-lb. section of the American Railway Engineering Association.

Enormous Damages Awarded in the Rogers Pass Tunnel Suit.

Judgment was given at Vancouver, June 30, fixing the damages to be paid McIlwee & Sons, Denver, Col., in the action brought against Foley, Welch & Stewart for breach of contract in connection with the boring of the Rogers Pass tunnel on the C.P.R. The matter came before Mr. Justice Morrison, in the Supreme Court, the sole question to be considered being the amount of damages to be assessed in McIlwee's favor. All the other questions were decided in the Imperial Privy Council's decision which was given in full in Canadian Railway & Marine World for July. This decision settled the principles upon which the damage was to be ascertained.

The Judge began to hear evidence June 21. It was principally of a scientific character, and the various points were illustrated with plans and sections, and models of Mount Sir Donald, and of the tunnel, as well as with specimens of rock. The plaintiffs set their damages at about \$800,000, and after the hearing the Judge placed them at \$576,155.98. This figure was given in evidence by S. W. Brunton, a mining engineer of Denver, Col.

Application was made to Justice Morrison in Chambers July 12, on behalf of defendants, Foley, Welch and Stewart, for leave to appeal against the amount of damages awarded McIlwee & Sons. Leave was granted, the appellants to pay \$600,000 into court, as security for damages and costs.

United States Railway Earnings and Expenses.

Net operating income of United States railways for April increased \$102 a mile, or 42.3%, compared with April, 1910. Comparing April, 1916, with the average April of the preceding five years, the increase was 52.5%. Total operating revenues were \$280,987,306, an increase over 1915 of \$50,008,959. Operating expenses were \$189,923,465, an increase of \$24,928,514. Net operating revenue was \$91,063,841, an increase of \$25,080,445. Taxes were \$12,495,265, an increase of \$1,315,922. This left \$78,507,780 net operating income, available for rentals, interest on bonds, appropriations for improvements and new construction, and dividends. Operating revenues per mile averaged \$1,223, an increase of 20.8%; operating expenses per mile averaged \$827, an increase of 14.3%, net operating revenue per mile averaged \$396, an increase of 37% while net operating income per mile was \$342, an increase of 42.3%. Taxes per mile increased 10.9%. Railways operating 229,621 miles of line are covered by this summary, or about 90% of the steam railway mileage in the U.S.

April operating income per mile was 42.3% greater in 1916 than in 1915, 66.1% greater than in 1914, 59.7% greater than in 1913, and 61.2% greater than in 1912.

The ten months of the current fiscal year, compared with the corresponding period of the preceding year, show changes per mile of line as follows: operating revenues increased 15.8%, operating expenses increased 7.1%, net operating revenue increased 36.9%, taxes increased 7.4% and operating income increased 42.4%.

The rails exported from the United Kingdom in March were 3,368 tons against 17,572 in Mar. 1915.

Board to Enquire into Canadian Railway Situation.

A. H. Smith, President New York Central Rd., New York; Sir Henry Drayton, Chief Railway Commissioner for Canada, and Sir Geo. Paish, of London, Eng., have been appointed to enquire into the whole Canadian railway situation, as foreshadowed during the Dominion Parliament's last session. The order in council is as follows:

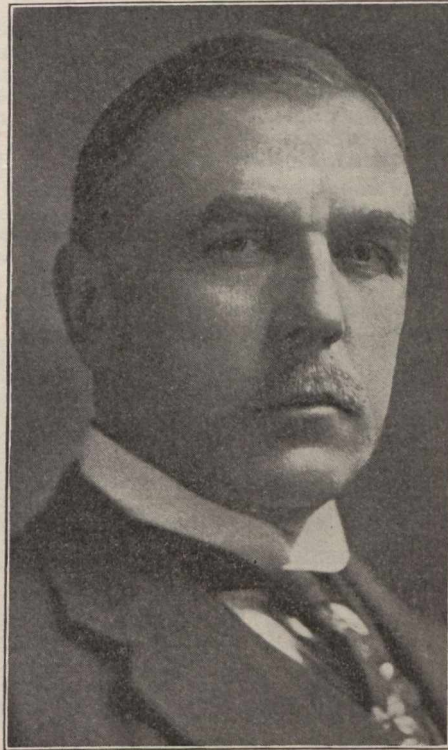
The committee of the Privy Council have had before them a report, dated June 12, 1916, from the Prime Minister, submitting that it became necessary at the recent session of Parliament to make provision for assistance by loan to the Grand Trunk Pacific and Canadian Northern Railway Companies in order that they might be enabled to meet current obligations and to provide for payment of interest on outstanding securities.

Having regard to the conditions and necessities of railway development in Canada the Prime Minister is of opinion that the situation should be considered in a comprehensive way and that a thorough enquiry should be made by a board of the highest ability and experience.

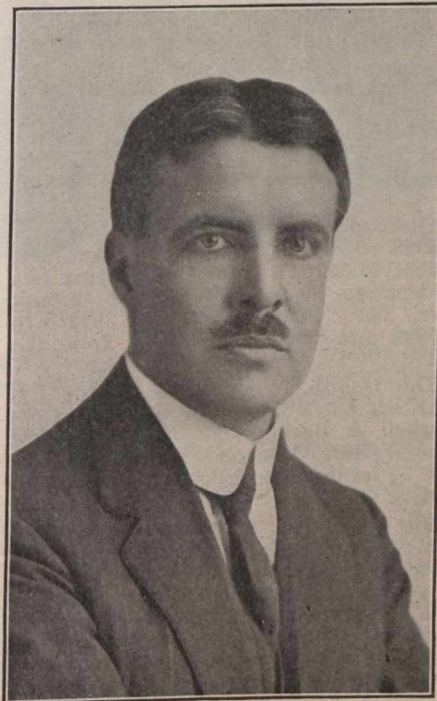
The Prime Minister further submits that the inquiry should have reference to the following matters: 1. The general problem of transportation in Canada. 2. The status of each of the three trans-continental railway systems, the C.P.R., the Grand Trunk Ry. System (including the Grand Trunk Pacific Ry. and the Grand Trunk Ry. and their several branches) and the Canadian Northern Ry. having special reference to the following considerations: (a) The territories served by each system and the service which it is capable of performing in the general scheme of transportation; (b) Physical conditions, equipment and capacity for handling business; (c) Methods of operation; (d) Branch lines, feeders and connections in Canada; (e) Connections in the United States; (f) Steamship connections on both oceans; (g) Capitalization, fixed charges and net earnings having regard to (i) present conditions, and (ii) probable future development with increase of population. 3. The reorganization of any of the said railway systems, or the acquisition thereof by the state; and in the latter case the most effective system of operation whether in connection with the Intercolonial Ry. or otherwise. 4. Generally speaking all matters which the members of the Board may consider pertinent or relevant to the general scope of the inquiry.

The Prime Minister therefore recommends as follows: That A. H. Smith, of New York, N.Y.; Sir Henry L. Drayton, of Ottawa; and Sir George Paish, of London, Eng., be the members of the said Board; A. H. Smith to be Chairman. That the Board be constituted under part 1 of the Inquiries Act, and that it shall have all powers and authorities which could be conferred under the authority of that Act as amended by chap. 28 of the Statutes of 1912, an Act to amend the Inquiries Act. That the provincial governments be respectfully requested to afford to the Board any necessary information and co-operation in the enquiry. That all the departments of the Government shall afford to the Board and to all persons acting under its authority and by its direction all such assistance and co-operation in the inquiry as the Board may desire; That the Board of Railway Commissioners for Canada, the Commission of Conservation, and all other bodies of a

like character under the jurisdiction of the Parliament of Canada, shall co-operate with and assist the Board in the proposed inquiry; That the Board shall report its findings and conclusions with the least possible delay; That a commission



A. H. Smith,
President New York Central Railroad.



Sir Henry L. Drayton,
Chief Railway Commissioner for Canada.

for the purposes aforesaid shall issue to the members of the Board above designated.

The committee concur in the foregoing and submit the same for approval.

Alfred H. Smith, who is 51 years of age, began his railroad career, in 1879,

as a messenger boy for the Lake Shore & Michigan Southern Ry., at Cleveland, Ohio, worked in the Purchasing Agent's office for a time; then resigned to go in a construction gang engaged in the change of grade and reconstruction of the Lake Shore west of Toledo; worked several years there, becoming foreman and general foreman on construction work. In 1890 he was made Superintendent, Kalamazoo Division, and successively was made Superintendent of the Lansing, Franklin and Michigan Divisions. In 1901 he was appointed Assistant General Superintendent of the Lake Shore, and then General Superintendent; and was transferred in 1902 to the New York Central as General Superintendent. In 1903 he was appointed General Manager of that line, and in 1906 was made Vice President & General Manager. On April 15, 1912, he was made Vice President of the lines west of Buffalo, with jurisdiction over operation, maintenance, and construction of all lines in the New York Central system, east and west of Buffalo. On April 1, 1913, he was appointed Senior Vice President with jurisdiction over all the roads included in the New York Central System Lines, and over all departments. He was elected President of all the New York Central Lines Jan. 1, 1914.

Sir Henry Lumley Drayton was born at Kingston, Ont., Apr. 27, 1869, and educated in England and Canada, commencing his legal career in 1886 as a law student at Toronto. He was admitted to the Ontario bar in 1891 and commenced practice in Toronto, being appointed Assistant City Solicitor in 1895, resigning in Sept. 1900 to re-engage in private practice. On Jan. 29, 1904, he was appointed Crown Attorney for the County of York, Ont., resigning in Nov. 1909 to resume private practice. He was appointed a K.C., Jan. 20, 1908, and on Apr. 25, 1910, was appointed Counsel for the City of Toronto, and subsequently was one of Toronto's representatives on the Ontario Hydro Electric Power Commission. In July, 1912, he was appointed Chief Railway Commissioner, following the death of J. P. Mabee. On the outbreak of war he was in London, Eng., and under the acting High Commissioner rendered good service in connection with the aiding of Canadians who were stranded at various points on the continent on account of the war. He was created a knight bachelor on the King's birthday, June 3, 1915.

Sir George Paish was born in England in 1867, and was from 1881 to 1900, successively, secretary to the editor, sub-editor, and assistant editor of The Statist, London, Eng., and since 1900 joint editor. From 1906 to 1908 he was governor of the London School of Economics, member of the departmental committee of the Board of Trade on Railway Accounts and Statistics; 1914 to 1915, adviser to the Chancellor of the Exchequer and the British Treasury on financial and economic questions. Among the works of which he is the author, are, The British Railway Position, Railways of Great Britain, Railroads of the United States, Capital Investments in other Lands, and Savings and Social Welfare. He was created a knight bachelor in 1912.

An Ottawa press dispatch says that the board will probably begin work at once, that the enquiry will be conducted from a central office which will most likely be located at Ottawa, and that the board will travel over the main and larger branch lines. An expert clerical staff

will be employed and steps will be taken to secure full information as to the physical value and financial condition of the roads. It is hoped to have the report ready for the next session of Parliament.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1914-15, from July 1, 1915:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$1,206,100	\$921,000	\$285,100	x\$145,400
Aug.	1,192,800	954,000	238,800	x5,900
Sept.	2,014,500	1,353,000	661,600	1,900
	\$4,413,600	\$3,227,000	\$1,186,600	x\$79,300
Decr.	\$658,300	\$579,000	\$79,300	.....

Mileage in operation at Sept. 30, 1915, 4,965, against 4,670 at Sept. 30, 1914. Commencing with October, the figures show the earnings of the entire system, both eastern and western lines.

	Gross Earnings	Expenses	Net Earnings	Increase
Oct.	\$3,678,500	\$2,421,500	\$1,257,000	\$537,800
Nov.	3,535,200	2,323,800	1,211,400	618,400
Dec.	3,435,600	2,233,500	1,202,100	768,900
Jan.	2,086,800	1,831,400	255,400	88,100
Feb.	2,089,200	1,959,800	129,400	x193,500
Mar.	2,607,000	2,240,600	366,400	x134,800
Apr.	2,824,300	2,274,400	549,900	5,500
May	3,088,900	2,361,700	727,200	368,600
	\$30,047,800	\$22,495,000	\$7,552,800	\$2,216,300
Inc.	\$7,273,700	\$5,057,400	\$2,216,300	.....

Average mileage operated for period ended May 31, 7,935, against 7,001 for same period in the previous year.

Approximate earnings for June, \$3,377,200 against \$1,779,600 for June, 1915, and for two weeks ended July 14, \$1,760,000, against \$879,100 for same period 1915.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1914-15, from July 1, 1915:

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$7,895,375.47	\$5,094,972.35	\$2,800,403.12	\$978,042.71
Aug.	8,801,451.52	5,359,136.80	3,442,314.72	79,157.02
Sept.	10,273,165.45	6,527,864.81	3,745,300.64	378,252.25
Oct.	13,493,206.88	8,863,780.29	4,629,426.59	3,258,105.79
Nov.	13,351,233.51	8,996,870.48	4,354,363.03	3,710,340.86
Dec.	12,705,673.45	7,003,351.97	5,702,321.48	3,502,797.67
Jan.	8,588,826.04	6,498,417.81	2,090,408.23	954,174.93
Feb.	8,795,830.30	6,501,487.56	2,294,342.74	315,328.12
Mar.	10,380,981.38	6,959,651.62	3,421,329.76	448,315.63
Apr.	10,881,306.37	7,147,570.40	3,733,735.97	1,045,980.76
May	12,472,167.46	8,099,884.55	4,372,282.91	1,929,280.72

\$117,589,275.99 \$72,052,988.64 \$45,536,287.35 \$14,639,691.04 Inc. \$26,236,100.14 \$11,596,409.10 \$14,639,691.04

Approximate earnings for June, \$11,343,000, against \$6,990,000 for June, 1915, and for two weeks ended July 14, \$5,354,000, against \$3,301,000 for same period 1915.

Grand Trunk Railway Earnings.

Following are the earnings and expenses for the G.T.R., including the Canada Atlantic Ry., the G.T.W.R. and D.G.H. and M.R., for May, compared with those for May, 1915:—

Grand Trunk Railway.		Grand Trunk Western Railway.		Detroit, Grand Haven and Milwaukee Ry.	
	1916.		1915.		1915.
Earnings	\$3,548,400	\$2,465,600	\$2,183,900	\$ 240,600	\$ 6,000
Expenses	2,465,600	2,465,600	2,183,900	240,600	6,000
Net earnings	\$1,082,800	\$1,082,800	\$1,082,800	\$ 240,600	\$ 6,000
	1916.		1915.		
Earnings	\$ 307,400	\$ 264,100	\$ 239,700		
Expenses	264,100	264,100	239,700		
Net earnings	\$ 43,300	\$ 43,300	\$ 43,300		

Approximate net earnings for June, \$5,109,033, against \$4,403,613 for June, 1915, and for two weeks ended July 14, \$2,366,422, against \$1,979,907 for same period 1915.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to June 30:—

	1916.	1915.	Increase.
G.T.R.	\$21,061,761	\$18,607,573	\$2,554,188
G.T.W.R.	4,597,519	3,479,230	1,118,289
D.G.H. & M.R.	1,631,250	1,103,806	527,444
Totals	\$27,290,530	\$23,090,609	\$4,199,921

Grand Trunk Pacific Railway Earnings.

Approximate earnings of the Prairie Section, 916 miles, for June, were \$398,405, against \$215,357 for June 1915, and the aggregate earnings for six months ended June 30, were \$2,339,991 against \$1,350,802 for same period 1915.

Railway Rolling Stock Notes.

Imperial Oil Co., Sarnia, Ont., has received 100 tank car underframes from Canadian Car and Foundry Co.

The French Government is reported to have ordered 100 small field locomotives, valued at about \$750,000, from Baldwin Locomotive Works, Philadelphia.

The Canadian Northern Ry. has received 2 compartment observation cars, nos. 9950 and 9951 from Canadian Car and Foundry Co.

The Russian Government, it is stated, is arranging to place orders in Canada and the United States, for 40,000 freight cars.

The Acadia Coal Co. has ordered 150 small all steel mining cars from the Canadian Car and Foundry Co., to be built at its Amherst Works.

Canadian Government Railways have received 200 stock cars, 30 tons capacity, from Canadian Car and Foundry Co. They were described and illustrated in our last issue, pg. 276.

The Canadian Car and Foundry Co. has completed delivery of the 1,200 Belgian box cars, which were ordered by the British Government in June 1915, and which were fully described and illustrated in our issue of September 1915.

It is reported that the Madrid, Alicante & Zaragoza Ry. of Spain has ordered 25 locomotives of the most modern type from the United States. No confirmation of this report has been obtained up to the time of writing.

The Grand Trunk Pacific Ry. has purchased 80 second hand dump cars, nos. 393541 to 393620, from Siems-Carey Co., contractors, St. Paul, Minn., and 43 tank cars, nos. 396900 to 396906, 396920 to 396932 and 396940 to 396962, from the G.T.R.

The Duluth, Winnipeg & Pacific Ry. (C.N.R./ has ordered 750 box cars from Haskell & Barker Car Co., one snow plough from Montreal Locomotive Co., and 10 locomotives from American Locomotive Co.

The C.P.R. is changing the lighting system from gas to electricity, on 141 passenger cars, as follows:—49 sleeping, 12 straight parlor, 15 cafe parlor, 23 dining, 7 compartment sleeping, and 35 observation. In addition to this work, all of which is being carried out at the Angus Shops, the smoking rooms of 11 Glen observation cars are being converted to the same type as those on the Mount observation cars.

Following are the chief details of the 750 box cars which the Duluth, Winnipeg & Pacific Ry. (C.N.R.) has purchased from the Haskell & Barker Car Co., Michigan City, Mich.:

Capacity	80,000 lbs.
Length over end sills	36 ft. 9 3/4 ins.
Width over side sills	9 ft. 9 3/4 ins.

Length inside	35 ft. 11 ins.
Width inside	8 ft. 6 1/2 ins.
Height inside, clear	8 ft.
Length over pulling faces of couplers	39 ft. 1 1/2 ins.

Following are the chief details of the 10 locomotives which the Duluth, Winnipeg & Pacific Ry. (C.N.R.) has ordered from the American Locomotive Co.:

Weight in working order on front truck	25,000 lbs.
Weight in working order on drivers	216,000 lbs.
Weight in working order, total	241,000 lbs.
Weight of tender, light	61,000 lbs.
Boiler, type	Extended wagon top
Boiler pressure	200 lbs.
Tubes, no. and diar.	227—2 ins., 30—5 3/4 ins.
Tubes, length	15 ft. 2 3/4 ins.
Heating surface, firebox	185 sq. ft.
Heating surface, flues	2,453.12 sq. ft.
Heating surface, total	2,638.12 sq. ft.
Firebox	66 1/4 by 111 ins.
Superheater	C.N.R. Standard
Lighting	Pyle National

Toronto-Port Arthur Summer Passenger Fares Reduced.

For several years the summer all rail first class passenger fares between Toronto and Port Arthur have been, one way \$24.25, and round trip \$39.15. The lake and rail fare, that is, via Port McNicoll, and C.P.R. steamships, or via Sarnia and Northern Navigation Co., have been, one way \$23.25, round trip \$40.45. As the lake and rail fares include meals and berth on steamship, the lake and rail routes had a very substantial differential over the all rail fare and after giving the matter consideration the Canadian Northern Ry. management decided that the lake and rail routes were not entitled to the differential and established summer fares between Toronto and Port Arthur at the following figures: One way \$18.05, round trip \$34.80. The C.P.R. met the all rail fares established by the Canadian Northern and the new rates were put into effect by both lines on June 10 and will continue to Sept. 20.

Government Railways Small Claims Act

The amendment passed by the Dominion Parliament last year is in the following terms:—"The Government Railways Small Claims Act, chap. 26, statutes 1910, and the acts amending the same, chap. 20, statutes of 1913, and chap. 2 statutes of 1914, shall apply and extend to all claims arising out of the operating of all railways, and all branches and extension thereof, and ferries in connection therewith, under the control and management of the Minister of Railways and Canals, as fully as they now apply and extend to claims arising out of the operation of the International Ry." The apparent intention of the 1910 act was to give facilities for their prosecution in the ordinary courts of small claims against the railways operated by the Department of Railways, but it appears that the enacting clause was drawn in such a way that it included the Intercolonial Ry. only. It was first sought to make the provisions of the act apply to the Prince Edward Island Ry. only, in addition to the Intercolonial Ry., but after considerable discussion, the amendment was passed as above quoted.

Traffic Delays in British Columbia.

The C.P.R. and the Canadian Northern Ry. experienced considerable delays to traffic during the last few days of June and the first few days of July owing to washouts—the C.P.R. in the Kicking Horse Canyon, and the C.N.R. on the North Thompson River. The difficulty on the C.P.R. was considerably minimized by its being able to utilize its leased line—the Kettle Valley Ry. Through traffic was resumed on regular schedules in about a week.

Mainly About Railway People Throughout Canada.

Lieut. J. B. Heron, 2nd Field Company, Canadian Engineers, C.E.F., has been appointed a captain in No. 1 Construction Battalion, C.E.F.

Mrs. E. Tiffin, wife of the General Western Agent, Canadian Government Railways, Toronto, who has been ill, has gone to St. Andrews, N.B.

Jos. Ramsey, Jr., President, Lorain, Ashland & Southern Rd., and formerly President, Wabash Rd., died at East Orange, N.J., July 7, aged 66.

Hon. J. D. Reid, Minister of Customs, is again acting as Minister of Railways and Canals, during the absence through ill health of Hon. F. Cochrane.

M. A. Pigott, railway contractor, died suddenly at Hamilton, Ont., July 5, aged 66. One of his last contracts was a section of the Guelph and Goderich Ry., now part of the C.P.R.

R. M. Roy, Manager, Hamilton Bridge Works Co., who died at Hamilton, Ont., June 27, after a long illness, was, for a time, several years ago, in the G.T.R. engineering department.

Hon. Frank Cochrane, Minister of Railways and Canals, left Ottawa, July 12, for St. Andrews-by-the-Sea, N.B., where he is spending the summer, his health being again unsatisfactory.

J. E. McLeod, formerly Superintendent of the Railway Mail Service, Toronto, died there June 9, aged 62. He entered the railway mail service about 40 years ago, and retired in 1913.

Mrs. MacTier and Miss MacTier, wife and daughter of the General Manager, Eastern Lines, C.P.R., left Montreal at the end of June for Murray Bay, Que., where they are spending the summer.

W. C. Hunter, at one time Manager, New Brunswick Coal & Railway Co.'s railway, is now Assistant Superintendent of the Nova Scotia Steel & Coal Co.'s shell shops at New Glasgow, N.S.

Gunner Howard Brown, of the Canadian Field Artillery, son of M. H. Brown, Division Freight Agent, C.P.R., Toronto, who was reported missing, is a prisoner at Dulmen, Westphalia.

Sir Edmund B. Osler, director, C.P.R., and Lt. Col. R. W. Leonard, formerly Chairman National Transcontinental Ry. Commission, have each offered a fellowship in the University of Toronto, tenable for one year.

Lieut. S. H. Hannan, of the Field Artillery, who was killed in action recently, was on the staff of Sir John Jackson, Ltd., Canada, contractors, prior to the war. He was awarded the Military Cross in Sept. 1915.

F. P. Gutelius, M.Can.Soc.C.E., General Manager, Canadian Government Railways, Moncton, N.B., was operated on for appendicitis, at the Western Hospital, Montreal, July 12, and is progressing favorably.

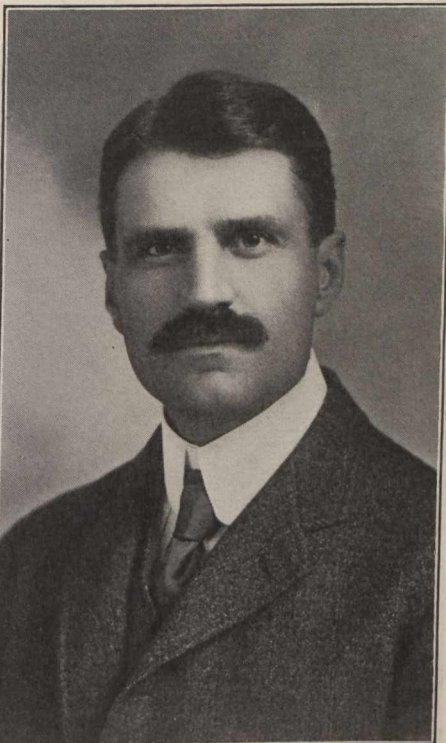
Lt. Col. R. W. Leonard, M.Can.Soc.C.E., St. Catharines, Ont., of the Corps of Guides, and formerly Chairman, National Transcontinental Ry. Commission, has been appointed Assistant Adjutant General on the headquarters staff at London, Ont.

Major Thos. C. Irving, D.S.O., A.M.Can.Soc.C.E., Toronto, of the Canadian Engineers, and Vice President, Robert W. Hunt & Co. Ltd., consulting and inspecting engineers, was married at Hythe, Kent, Eng., July 10, to Miss J. E. Murray, of Toronto.

H. J. Cundall, who died at Charlottetown, P.E.I., July 16, aged 81, acted as land surveyor in connection with land expropriations for the construction of the Prince Edward Island Ry., and was President of the Prince Edward Island Telephone Company.

Sir Donald Mann, Vice President, Canadian Northern Ry., has been on a trip of inspection over the C.N.R. Western Lines, accompanied by E. E. Loomis, Vice President, Delaware, Lackawanna, & Western Ry., and two representatives of New York financial concerns interested in C. N. R. securities.

George Bury, Vice President C.P.R., returned to Montreal at the middle of July after going over the company's lines to the Pacific Coast. A. D. Little, who is organizing a research department for the C.P.R., accompanied him, and address-



F. Rioux,
Assistant to President, Reid Newfoundland Co.

sed a meeting of the Canadian Society of Civil Engineers in Vancouver; and of the Canadian Manufacturers' Association, at Winnipeg.

Albert Moore, private secretary to the General Manager for the Receivers, Pere Marquette Rd., Detroit, Mich., died at his home at St. Thomas, Ont., July 9, of typhoid-pneumonia, aged 23. He was born and educated at St. Thomas, and entered railway service with the G.T.R. and Wabash Rd. there, about six years ago, and transferred to P.M.R. service about three years ago.

Corporal A. M. Morrison, who has been awarded the distinguished conduct medal for conspicuous bravery in action, was, prior to enlistment, one of the engineers engaged on the construction of the Pacific Great Eastern Ry. in British Columbia. One of his brothers is on the Canadian Northern Ry. engineering staff at Toronto, and another is an engineer in the Dominion Department of Public Works at Halifax, N.S.

Edward Fitzgerald, Assistant General Purchasing Agent, C.P.R., who was "loaned" to the British War Office, shortly after the war's outbreak, to purchase in Canada for the Imperial Government, and who since early this year has also been purchasing for the Imperial Munitions Board, has been appointed Assistant to the Chairman, Imperial Munitions Board.

F. W. Peters, General Superintendent, British Columbia Division, C.P.R., Vancouver, has been appointed a member of the Military Hospitals Commission of Canada by the Dominion Government. The Commission's Bulletin says that he has rendered splendid service to returned Vancouver soldiers, and as President of the Vancouver Club has been largely instrumental in the establishment of a returned soldiers' club in Vancouver.

G. G. Ommanney, Special Engineer to the President, C.P.R., who is on leave of absence for military service, was given a commission in the Royal Engineers in August 1915 and is now in command, with the rank of Captain, of the 138th (A.T.) Co., R.E. (B.E.F.) having returned to the front for the second time after a brief leave in England. His work in the C.P.R. service has been absorbed by the company's engineering department.

C. H. Ostler, Engineer and Superintendent, Gas Department, Montreal Light, Heat & Power Co., who died suddenly at Montreal recently, was at one time an engineer on the Kingston & Pembroke Ry., subsequently was an engineer in charge of location surveys for the C.P.R. in Western Canada, and later was in Canadian Northern Ry. service. He was a member of the Canadian Society of Civil Engineers from its inception.

J. Dickson, who was appointed recently Superintendent of Motive Power, Spokane, Portland and Seattle, Oregon Trunk, Pacific and Eastern, Spokane and Inland Empire, Oregon Electric and United Rys., Portland, Ore., was born at Montreal, June 30, 1872, and educated there and at St. Paul, Minn. He entered railway service at St. Paul as a machinist apprentice with the Great Northern Ry., and has chiefly been associated with that road and its subsidiaries ever since.

John Hendry, President, Vancouver, Westminster, and Yukon Ry. Co., died at Victoria, B.C., July 18. He was born at Belledune, N.B., Jan. 20, 1843, and went west in 1872, when he identified himself with lumber and milling interests in British Columbia. He was at different times interested in the Kaslo & Slocan Ry., Nicola Valley Coal & Coke Ry. Co., and the Vancouver, Westminster & Yukon Ry. The last mentioned company's physical properties were sold to the Great Northern Ry. some years ago.

M. W. Bard, who was appointed Assistant Superintendent, District 1, Eastern Division, C.P.R., Farnham, Que., recently, was born at Walnut, Bureau County, Ill., June 27, 1871, and entered railway service, Jan. 8, 1890, since when he has been, to Aug. 2, 1901, freight brakeman, Chicago, Burlington & Quincy Rd.; Aug. 2, 1901, to Aug. 1, 1913, freight conductor, same road; Aug. 1, 1913 to 1914, passenger conductor, same road; 1914 to Jan. 24, 1916, Trainmaster, Construction Department, same road.

R. D. Waugh, Mayor of Winnipeg, has been appointed Chairman of the Greater Winnipeg Waterways District Commis-

sion, succeeding the late S. H. Reynolds, who was also Treasurer; while according to the board's constitution the Mayor of Winnipeg is Chairman of the Administrative Board. J. H. Ashdown, the other Commissioner, was appointed Treasurer. The salary of Chairman of the Commission is \$5,000, and that of the Treasurer \$1,500. The Commission owns a railway extending from St. Boniface to the Shoal Lake, a tributary of Lake of the Woods.

O. M. Lavoie, who was appointed Chief Dispatcher, District 1, Eastern Division, C.P.R., Farnham, Que., recently, was born at St. Cyrille de Wendover, Que., Oct. 16, 1882, and entered railway service Mar. 1899, since when he has been, to Apr. 1900, telegraph operator, Intercolonial Ry.; Apr. 1900 to Sept. 1902, telegraph operator, Quebec, Montreal & Southern Ry.; Sept. 28, 1902, to July, 1909, operator, C.P.R.; July 19, 1909, to Jan. 15, 1916, dispatcher, C.P.R., Farnham, Que.

F. Rioux, Assistant to President, Reid Newfoundland Co., whose portrait is published in this issue, has received a commission as Second Lieutenant in the British Army Service Corps, and has left St. John's attached to a Newfoundland contingent, and will be transferred to the British service on arrival in England. He was born at Trois Pistoles, Que., Apr. 18, 1867, and entered railway service July, 1883, since when he has been, to 1885, operator on construction, C.P.R., Mattawa, Ont.; 1885 to 1888, in operating department; 1888 to 1889, dispatcher, North Bay, Ont.; 1889 to 1898, Assistant Chief Operator, Montreal; 1898 to 1900, Chief Dispatcher, Reid Newfoundland Co., 1900 to 1905, Assistant Superintendent; 1905 to Dec. 31, 1912, Superintendent; Jan. 1, 1913 to date, Assistant to President.

W. D. Robb, Superintendent Motive Power, G.T.R., and Mrs. Robb, left Montreal early in July for England, to see their son, Jas. Bruce Robb, who was wounded in action as mentioned in our last issue. He is a private, no. McG. 81, in the Princess Patricia's Canadian Light Infantry, having gone over with the first reinforcement sent by McGill University, and was in the trenches for nearly a year before being wounded. In a letter received in Montreal at the end of June he said that his back resembled a pepper shaker. He was blown clean out of the trench, and his chum, who was very severely wounded at the same time, wrote home that he did not know what had become of Robb, as when they were blown up they lost track of each other. Private Robb is reported progressing satisfactorily.

Reginald William Douglas Harris, whose appointment as Trainmaster, C.P.R., Ignace, Ont., was announced in our last issue, and whose portrait appears in this issue, was born at Victoria, B.C., Dec. 12, 1879. He is the elder son of Dennis R. Harris, M.Can.Soc.C.E., whose wife is the youngest daughter of the late Sir James Douglas, the first Lieutenant Governor of British Columbia, who founded and named the city of Victoria. He was from 1897 to 1904 with the Bank of British North America, in Victoria and Vancouver, and from 1904 to June 1905, was engaged in civil engineering as assistant to F. J. Ritchie, D.L.S., in British Columbia. He entered C.P.R. service in June 1905, since when he has been, to June 1906, wiper, Field, B.C.; June 1906 to June 1911, fireman, Revelstoke, B.C.; June 1911 to Apr. 1914, locomotive man, Revelstoke, B.C.; Apr. 1914 to May 1916, Trainmaster, Wilkie, Sask.

Andrew F. Macallum, who has been appointed city engineer of Ottawa, entered the railway engineering field after graduation from the University of Toronto. He served in the engineering departments of the Canadian Pacific, Grand Trunk, Toronto, Hamilton & Buffalo, and Minneapolis & St. Louis Railways. For three years he studied sewerage and waterworks systems in several Canadian cities. In 1905 he was placed in charge of 80 miles of construction for the National Transcontinental Ry. Two years later he opened a consulting office in Toronto and reported on the continuation of construction of the Alaska Central Ry. now being built by the United States government. He was also consulting and municipal engineer for West and North Toronto on development of water power, electric railway construction and municipal works. He was made city engineer of Hamilton in 1909.

Charles Hood, whose appointment as Local Freight Agent, C.P.R., Saskatoon, Sask., was announced in our last issue,



R. W. D. Harris,
Trainmaster, District 1, Manitoba Division,
Canadian Pacific Railway.

was born at Edinburgh, Scotland, Jan. 20, 1864, and entered C.P.R. service Aug. 15, 1895, since when he has been, to Sept. 6, 1895, section man, North Portal, Sask.; Sept. 7, 1895 to Oct. 20, 1896, assistant agent, Broadview, Sask.; Oct. 21, 1896, to Oct. 3, 1898, day operator, North Portal, Sask.; Oct. 4, 1898, to Oct. 7, 1899, night operator, Moose Jaw, Sask.; Oct. 8, 1899, to July 12, 1902, agent, Swift Current, Sask.; July 21 to Dec. 21, 1902, agent, North Portal, Sask.; Jan. 19 to Oct. 19, 1903, agent, Swift Current, Sask.; Oct. 21, 1903, to Apr. 30, 1905, agent, Maple Creek, Sask.; May 1, 1905, to Apr. 30, 1906, Supervisor of Agencies, Winnipeg; May 1, 1906, to Nov. 30, 1908, Freight Claims Agent, Central Division, Winnipeg; Dec. 1, 1908, to Dec. 28, 1910, General Fuel Agent, Western Lines, Winnipeg; Jan. 2, 1911, to Apr. 2, 1912, Terminal Trainmaster, Calgary, Alta.; Apr. 3, 1912, to Oct. 18, 1913, Trainmaster, Cranbrook, B.C.; Oct. 19, 1913, to Nov. 10, 1915, Trainmaster, Grand Forks, B.C.;

Nov. 11, 1915, to May 22, 1916, Trainmaster, Nelson, B.C.

William Marshall Thompson, who has been appointed Superintendent of Traffic, Eastern Lines, C.P.R. Telegraphs, Montreal, was born at Long Whetton, England, May 2, 1879, and commenced telegraph service Oct. 1, 1895, since when he has been, to Dec. 8, 1895, operator, C.P.R., Ingolf, Ont.; Jan. 1896 to Aug. 1, 1898, in other business in the United States; Aug. 1, 1898, to May 26, 1899, agent and operator, Manitoba and Northwestern Ry., Neepawa and Keyes, Man.; May 27, 1899, to July 31, 1900, operator, C.P.R., Medicine Hat and Calgary, Alta.; Aug. 15, 1900, to Dec. 15, 1902, operator, Great North Western Telegraph Co., Montreal; Dec. 16, 1902, to Mar. 5, 1904, operator and dispatcher, C.P.R., North Bay, Ont.; Mar. 7 to May 15, 1904, commercial operator, C.P.R., Montreal; Oct. 17, 1904, to Oct. 31, 1905, operator in broker's office, Montreal; Oct. 17, 1904, to Oct. 31, 1905, commercial operator, C.P.R., Winnipeg; Nov. 1, 1905, to July 1, 1910, agent, C.P.R. Telegraphs, Brandon, Man.; July 1, 1910, to July 11, 1911, manager, Grain Exchange Branch, same company, Winnipeg; July 12 to Dec. 31, 1911, agent, same company, Saskatoon, Sask.; Jan. 1, 1912, to Aug. 19, 1913, chief operator, same company, Winnipeg; Aug. 20, 1913, to Mar. 12, 1915, agent, same company, Winnipeg; Mar. 14, 1915, to May 31, 1916, chief operator, same company, Montreal.

Alexander D. Porter, who was recently appointed Mechanical Engineer, Dominion Government Railway to Hudson Bay, Winnipeg, was educated at Aberdeen, Scotland, and studied mechanical and electrical engineering and railway car building at the Robert Gordons Technical College there. He entered railway service in 1897 with the Great North of Scotland Ry., remaining there as mechanical apprentice until 1902, gaining experience in the erecting, machine, boiler, blacksmith and car shops; 1902 to 1905, Engineer in Charge, power plant and car electric lighting plant, same company; 1903 to 1905, draughtsman on locomotive shop and roundhouse design, same company; 1905 to 1906, draughtsman on railway and street cars, United Electric Car Co., Preston, England; 1905 to 1907, leading draughtsman on locomotives, Vulcan Locomotive Works, Lancashire, England; 1907 to 1908, material inspector, Construction Department, C.P.R.; 1908 to 1909, erecting shop foreman, Motive Power Department, same company, West Toronto, Ont.; 1909 to 1910, Foreman of Machine Shop and Air Brake Department, same company, West Toronto; 1910 to 1911, Assistant General Foreman of Shops, same company, West Toronto, and also in charge of investigation work into methods, time studies of locomotive repairs of all kinds and classes of machine work; 1910 to 1913, Assistant Mechanical Engineer, National Transcontinental Ry., in charge of installation of all plant equipment, Locomotive Shops, Transcona, Man., covering the supervision and erection of the whole equipment; 1913 to 1915, in charge of equipment of 13 locomotive houses at division points, same road. The work on the N.T.R. was completed in Oct. 1915, and after spending four months in Great Britain, he returned to Canada to take up his present position.

Hudson Bay Railway.—The Railways Department has ordered from the Algoma Steel Corporation 15,000 tons steel rails, A.S.C.E. standard sections, 80 lb., for the H.B.R., for 1917 delivery.

Terminal Facilities for Handling Grain at Fort William and Port Arthur.

The Fort William Board of Trade sent the following communication to the Board of Grain Commissioners recently:—We make application to your Board on the matter of terminal facilities for handling grain at Fort William and Port Arthur, because your Board has been empowered under a recent order in council to investigate the whole matter of the marketing of Canadian grain, and because the handling of grain at the terminal point appears to us to fall within the scope of the order in council. The situation is in outline as follows:

There are three transcontinental railway lines that carry grain to the head of the lakes. Each of them owns and operates its own terminal facilities, which were not built upon any prearranged plan, and a situation has developed that in our opinion and in the opinion of others leads to a very large amount of unnecessary expenditure, both upon the part of the Federal Government and the cities of Fort William and Port Arthur. In illustration of the unnecessary Dominion expenditure we point to the distance of about 12 miles between the Grand Trunk elevator and the elevator now being built by the Saskatchewan Co-operative Co. Over the whole of this distance there is money spent by the Dominion Government in dredging and various harbor facilities, a very large part of which would be unnecessary had there been a proper harbor planned which would have concentrated the terminal facilities for the handling of traffic upon a small area. It is our belief that millions of dollars have been wasted in this way alone. This diffusion over an unnecessarily large area of terminal facilities for handling traffic has involved waste, not only upon the Dominion Government, but also upon the cities of Fort William and Port Arthur. Houses are built for laborers to operate these facilities, streets laid and city utilities constructed over this unnecessarily large area. This involves an undue expenditure on the part of the cities of Fort William and Port Arthur and an unduly high rate of taxation. Further, it has been a potent factor in increasing the cost of living and thus in increasing the cost of labor, so that it involves not only waste but also an unduly high cost of terminal operation.

To handle all the traffic passing through the twin cities, although that traffic is large, a terminal scheme could have been devised, which would have avoided these undue expenditures. So far as the handling of grain is concerned, the policy hitherto has been that persons or companies building elevators at the head of the lakes erected them so that each elevator was connected with only one of the railway lines. At present only the Dominion Government elevator at Port Arthur has direct connection with two railway lines. All the other terminal elevators are restricted each to one railway line. Persons or firms building terminal elevators and owning and operating country elevators on two or three of the transcontinental systems, naturally desire to have their terminal elevators connected with all the railway lines. As intimated, hitherto this has been impossible. We understand that the Saskatchewan Co-operative Elevator Co. has secured connection with the Canadian Pacific and Canadian Northern Railways, but in order to do so has had to select a

site at the extreme end of Port Arthur, thus still further diffusing the terminal facilities and adding still more to the unnecessary expenditure, both Dominion and Municipal.

Yet owners and operators of terminal elevators desire connection with all the railway lines, and such connection having hitherto been impossible, there has resulted the necessity of either paying switching charges upon grain carried by the lines not directly connected with their elevator, or if they desire to avoid such switching charges, making arrangements with elevators on the other lines with which they themselves have no direct connection, arrangements which undoubtedly tend to minimize competition between the dealers of grain. For example, an elevator served by the Canadian Northern Ry. alone might be operated by a company operating country elevators upon the C.P.R. Such company buying grain along the C.P.R. would desire to consign it to their own terminal, but their terminal being situated on the Canadian Northern they could not consign the grain to their own terminal elevator without paying a switching charge at the head of the lakes. To avoid paying such switching charge they would therefore probably enter into a deal with one or more terminal elevators on the C.P.R. to the effect that they would consign their C.P.R. grain to those elevators, and those elevators would consign the same number of cars of grain to them over the Canadian Northern Ry. Such arrangements as this have been and are made and are now in effect, and while they may enable grain firms to avoid switching charges, they do not tend to strengthen or preserve that competition in the handling of grain which is necessary.

This argument would be much stronger if grain were traded upon sample as well as upon grade at the head of the lakes. Indeed, it may be asserted with confidence that one condition of a successful sample market at the head of the lakes would be securing for each terminal elevator direct connection with all the railway lines.

If your Board, under the order in council referred to, will, as it appears to us it is in duty bound to, give those interested an opportunity of presenting their opinions on this matter, the case can be presented in much greater detail and at much greater length. At present it is enough for us to make application, as we hereby do, to your Board to investigate this phase of the marketing of Canadian grain.

The Board met at Fort William, July 17, when representatives of that city and of Port Arthur were heard.

Negro Construction Battalion. The Militia Department has authorized Lt. Col. Daniel Sutherland, who is a graduate of McGill University, and a railway contractor, and whose address is Queen's Hotel, Halifax, N.S., to raise No. 2 Construction Battalion, C.E.F., the men to be recruited from Canadian negroes and to have white officers. The battalion will probably be called upon to do the same work as No. 1 Construction Battalion, that is, digging, road making, or any hasty military entrenchments or fortifications.

Toronto as a Railway Centre.

There was reprinted in the Toronto Globe recently a news item taken from the paper of the same date fifty years ago, to the effect that there had been held a meeting of the provisional directors of the projected Toronto, Grey & Bruce Ry. This project subsequently became an accomplished fact, and it is now, in a greatly improved form and condition, the Owen Sound Division of the C.P.R. Contemporary with it, and promoted by the same group of enterprising citizens, the Toronto & Nipissing Ry. was completed to Cobocok, and, together with the Victoria Ry. from Lindsay to Haliburton, it is now part of the Midland Division of the Grand Trunk. A very few years later the Credit Valley Ry. was similarly projected, to run from Toronto to St. Thomas and from Streetsville Jct. on that line, through Brampton towards Elora. Later it became a branch of the C.P.R., and it has since been extended to Detroit by way of London, and to Goderich by way of Guelph.

This group of lines was the outcome of the statesmanlike foresight, the persistent enthusiasm, and the tireless promotive work of the late George Laidlaw, to whom Toronto of today owes more of her material expansion than she owes to any other one of her citizens. This may easily be shown by reference to the facts of the railway situation as it was at the time when he began his propaganda and as it is at present. In 1866 there were in existence in local relation to Toronto as a centre the following lines: The main line of the Grand Trunk east through Montreal and west to Sarnia; the main line of the Great Western, now the Southern Division of the Grand Trunk, from Niagara Falls to Detroit, with a branch from Hamilton to Toronto; and the Northern, from Toronto to Collingwood, with a short branch from Allandale to Barrie. Toronto is now the radiating point of the following lines, in addition to those mentioned: Two C.P.R. lines eastward to Ottawa and Montreal; a C.P.R. line to Sudbury; a Canadian Northern line to Ottawa, Montreal, and Quebec; a Canadian Northern line northward through the districts of Muskoka and Parry Sound; and C.P.R. lines from Hamilton to Brantford and Buffalo, connecting with Toronto by a running franchise over the Grand Trunk from Hamilton.

This great expansion of the radiation of railways from Toronto was largely due to the impulse given to its development between 1866 and 1875, and to the later impulse due to the construction of the C.P.R. between 1881 and 1885. Few of the present citizens of Toronto know anything by personal recollection of what took place half a century ago, and it may interest those few and inform the younger generation to be afforded this glimpse of what was done by the stalwart pioneers, whose work of faith laid deep and permanent the foundations of the remarkable progress and permanent prosperity of the city.—Toronto Globe.

The Ontario License Board is reported as intending to prohibit the selling of intoxicating liquors on trains after Sept. 16, when the Ontario Temperance Act will go into force.

Foreign Steel Rail Orders. The Russian Government is reported to have placed orders with U. S. companies for 425,000 tons of steel rails, divided among four companies. During 1915, the same government ordered 400,000 tons of steel rails in the U. S.

Minimum Weight on Lumber Loaded on Flat Cars.

The Chief Railway Commissioner, Sir Henry Drayton, gave judgment on an application by Canadian Western Lumber Co., Ltd., recently as follows:—

In support of the application, the applicants submit,—“This is a very peculiar case. The car in question is a 32 ft. flat car, with a marked capacity of 40,000 lb. According to the tariff in question, this car would take a 40,000 lb. minimum, the same as a car 40 ft. long, and a capacity of anywhere up to 100,000 lb., which is of course unreasonable. The required minimum in this case is also the absolute maximum that can be loaded on the car. It is manifestly impossible in loading lumber to estimate exactly what the full load will weigh. Under the loading regulations, we are not permitted to put on the car more than 40,000 lb. If, in our efforts to put on 40,000 lb. we would exceed this figure by any small amount, it would necessitate stopping the car and unloading sufficient to bring the car down to 40,000 lb. weight. In the case of this particular shipment, it would mean that the lumber would be discharged from the car at the Delta, near Everett, Wash., which is nearly 100 miles from our shipping point. We are not presenting this in the usual form of a claim before the Commission, but to get a ruling on the point raised as to whether the minimum weight on a car can also be the maximum capacity of the car, which forces shippers to either weigh the material before loading (which is impossible), or take chances on underloading the car, thereby paying for dead weight; or, on the other hand, unloading the car and paying for labor of discharging part of the load, as well as the loss incidental thereto, as this work is generally done at some distance from the shipping point.”

The shipment in question consisted of fir. The Great Northern Ry. tariff covering the movement of fir and other lighter woods, contains an exception to the ordinary minimum of lumber loading, which amounts to 40,000 lb., by providing that in cars under 36 ft. in length, when loaded to the “full visible capacity” the minimum will be the actual weight but no less than 30,000 lb. The tariff gives the following definition: “The term ‘loaded to full visible capacity’ means that the entire space in the car shall be utilized to the fullest extent, and that no more lumber (or other material) in ordinary lengths can be loaded therein.”

The argument of the company's Assistant Traffic Manager Smitton, dated April 18, proceeds on the assumption that this provision as to the “full visible capacity” applies to the car in question. This car was, however, a flat car. I am at a loss to see how the loading of a flat car can in any way be covered by “visible capacity,” apart from further specifications or exact provision. How high may or should the loading go? Is it to go to such a height above the car level that any further additions would be either dangerous or create operating difficulties? If so, how can any shipper determine such questions? Apart from the consideration of common sense, this tariff itself would seem to exclude from flat cars the provision of “full visible capacity.” The tariff refers to space “in” the car, and loadings “therein.” Neither of these terms are usually, at any rate, applied to open cars, and are in marked contradistinction to the terms of “on” and “upon.” I am of the opinion that the

rule as to “visible capacity” cannot be applied to a car without a roof, unless the tariff itself supplies information as to the floor area to be occupied and the height to which the loading is to be carried.

It may be noted that the C.P.R. lumber tariff in British Columbia recognizes this difference by showing in addition to the exception made in the Great Northern's tariff a minimum of 30,000 lb. for short, open cars. In the absence of any such provision in the tariff in question, and as the rule of “visible capacity” cannot apply, the minimum must be left at 40,000 lb., that being the marked capacity of this flat car, which is a car of 34 ft. in length, as shown by the Equipment Register, where it is also shown as having a marked capacity of 40,000 lb.

The result is unfortunate, as the tariff certainly starts out to make an exception to the ordinary minimum loading, which as a matter of equity, should apply equally to flat cars carrying lumber of the lighter weights as it does to box cars. The tariff also says that when the marked capacity of the car is less than the minimum carload weight, as provided, the marked capacity will in all cases apply as the minimum. Other Great Northern tariffs recognize the difficulty as to “visible capacity” already noted as applied to open cars, as one of them C.R.C. 1129 provides as follows: “Open cars when compactly loaded with lumber, etc., to a height of 13 ft. above the top of the rail and to within 90% of the length or width of the floor space of the car will be considered loaded to the full visible capacity, and may, in such cases, be taken at actual weight.”

The company also contends that the shipper must state in the bill of lading

that the car had been loaded to its full visible capacity. There is no rule in the tariff requiring this declaration in the bill of lading; and, as a matter which is just as much within the knowledge of the railway company as it is within that of the shipper, such a provision in any event would seem unnecessary. The result is that the car in question under the tariff required the minimum loading of 40,000 lb.

On the question as to a minimum loading as great as the marked capacity of the car, in case of the necessity of getting as good loading as is reasonable, it would appear that there is no good reason why cars should not be loaded to capacity. It is, however, impossible to do this accurately for the reasons set out in the complaint; and it would occur to me that such a rule can only be allowed in cases where an overloading to the extent of 10% is safe and allowed by the railway company.

An interim or informal ruling was asked by the applicant. The whole question may be set down for hearing at Vancouver if the parties desire.

Utilization of Material from Old Freight Cars is being practiced systematically by the Baltimore & Ohio Rd., and the mechanical department estimates a salvage of \$20 a car in this way. The lumber is sawed and planed to remove defective portions and to give suitable sizes. It is then distributed for use in repair work and for building small structures, freight platforms, etc. Bolts, nuts, wheels, rods and other metal parts are sorted, trimmed and stored. The results have been so satisfactory that a reclamation plant has been established at Zanesville, Ohio, to which are sent all cars that are to be scrapped or destroyed. Reclamation work of a lighter character is carried on at division repair shops.

The Canadian Pacific Railway's Roll of Honor.

List 10 issued by C. H. Buell, Staff Registrar and Secretary Pension Department, prefaced by the following remarks: Several thousand officers and employes of this company enlisted for active military duty with the Canadian Expeditionary Forces, and the majority of them are now in Europe, bravely battling for Canada and the Empire. As particulars of army reservists are not available, these lists of those who have given up their lives for their country or been wounded are necessarily incomplete, and do not therefore indicate fully the extent to which the Company's officers and employes have participated in the great struggle.

Addison, Herbert	Carpenter	Winnipeg	Wounded
Anderson, John M.	Clerk	Calgary	Wounded
Arkle, Harry	Tariff compiler	Winnipeg	Wounded
Atkinson, Arthur	Cook	Montreal	Wounded
Boushear, Henry	Engineer	Fort William	Wounded
Burritt, Edgar M.	Clerk	North Bay	Killed in action
Chapman, Edward	Machinist	Angus	Killed in action
Diver, John W.	Car repairer	Toronto	Killed in action
Ellis, Thomas G. G.	Record clerk	Montreal	Died of wounds
Foster, James B.	Car repairer	Fort William	Wounded
Gilchrist, Thomas R.	Draughtsman	Ogden Shops	Suffering from shock
Hamilton, Edward	Deliveryman	Winnipeg	Wounded
Haswell, John	Boilermaker's helper	Moose Jaw	Wounded
Hilliard, Samuel J.	Porter	Edmonton	Wounded
Hogg, James	Clerk	Montreal	Killed in action
Hunt, Thomas	Fitter's helper	West Toronto	Suffering from shock
Kinahan, Ernest	Switchman	B. C. Division	Wounded
Kirwan, George I.	Brakeman	MacLeod	Wounded
McCourt, Samuel	Laborer	Strathcona	Killed in action
MacLaurin, Douglas C.	Student fireman	Sortin	Died of wounds
Maslin, Walter	Wood mch. hand	West Toronto	Wounded (2nd time)
Morrison, Harvey	Assistant Agent	Pilot Mound	Wounded
Moss, Albert	Car inspector	Saskatoon	Killed in action
Parkes, Herbert W.	Clerk	Montreal	Wounded
Price, John	Loco. fireman	Montreal	Wounded
Ross, Lorne	Fitter's helper	London	Killed in action
Scammell, Edward J.	Clerk	Bull River	Wounded
Sheen, Wilfred J.	Clerk	Winnipeg	Suffering from shock
Sweetman, L. H.	Assistant agent	Strathcona	Died of wounds

Co-operation, a Means of Solving the Labor Problem.

By D. McCooe, Superintendent of Tracks, Grand Trunk Railway.

The demand for more economical and practical methods for handling maintenance of way work and forces is increasing each year, and, to meet this, the general practice on most railways is to select the track department for the first retrenchment in both men and material. Like everything else, however, there must be a limit, and some roads have already reached the point where no further reductions can be made along these lines without deteriorating from the set standards of efficiency required on their respective lines.

There is no doubt that, with increasing traffic and the demand for still heavier power and faster trains, the track will require more and closer supervision in the future, but this cannot be accomplished by overloading the camel, any more than the locomotive of 20 years ago could handle the train of the present day.

Without proper and competent supervision there can be no real economy obtained. This may mean some increases in the staff and pay rolls, but it would also mean more work and better service. The importance of this cannot be overestimated when it is considered that a roadmaster with 100 to 200 men under his charge may lose more than his whole month's salary through one day's bad management or by not being able properly to cover his territory and visit the different gangs as often as necessary, especially where new work is being done.

The maintenance of way department has come in for considerable criticism in recent years from men who have both technical training and practical experience. This has done much towards bringing about the present standards and the adapting of many new methods and devices, but very, very little has been done to educate or improve the track forces. In fact, it is said they are the least efficient of any large group in the entire railway organization. Supposing this to be true, who is responsible?

Why are the foreigners replacing the native laborers in track work? We are told it is on account of the higher wages being paid by other industries; and, while this may be true in some districts, it does not apply to all, and, therefore, is only one of several reasons. The foreigners get the same pay that the native laborers do, working together in the same gangs. As an extra inducement, free houses are being built, schools established, and teachers hired by some railways to instruct and educate them. However, if the same encouragement and recognition were given to the native laborers might not better results be obtained?

Several discussions have taken place and committees have been appointed with a view of drafting one standard of practical and scientific methods for handling maintenance work and forces that would be applicable to all railways. But the obstacles to this are that it would be necessary to standardize earnings, men, material and efficiency required by each road to suit the climate and other conditions which are entirely different in each case.

The Pennsylvania is said to be the best managed and maintained railroad in America, but how many other railways are there in the country that could finance or adopt the Pennsylvania's standards, which themselves are subjected to changes? Then why trail along behind, sometimes for years, waiting to see what

some other fellow is going to do?

Some of the leading railways have organized their own maintenance of way association and appointed committees of their own men, who are given subjects with which they are most familiar, including standards, efficiency, and economy, as well as the best practical and technical methods of application, which are most suitable to the local conditions on their line. The merit of such organization and the results being obtained speak for themselves. This is not to be construed, as some may take it, to mean that we are to work in the same old rut. The members of these committees are allowed to visit other railways for the purpose of observation and also to attend the engineering and roadmasters' conventions annually. This gives them the opportunity to see and hear what others are doing.

The bonus or premium system has a tendency to cause dissatisfaction and make the men slight their work. As labor is a commodity governed by the demand, and is worthy of its hire, no further compensation should be necessary, under competent supervision, other than fair and just treatment with merited promotion when the opportunity occurs. All men are not equal, and no amount of drilling will ever make them so. Then why set a limit or expect 100% efficiency, or the equivalent thereof, from every man?

Authority to do the dictating, without being held to strict responsibility for the results, accounts for some of the shortcomings that the little fellows are so often blamed for. It is no excuse for a roadmaster or supervisor, whose track is going back on him, to say that the men are no good. They are generally not much better or worse than he makes them, and this same rule should apply on up to the top of the ladder.

There are no secrets in track or maintenance work that require such great science or skill but that any one with ordinary intelligence and common sense may learn from practical experience, but this cannot be picked up in a few months or a year, any more than a student can get a diploma to practice medicine in the same length of time. However, the man with both the technical and practical training has the advantage and can go higher.

There would be no economy in trying to improve the track by taking out a no. 1 tie and replacing it with a cull. Yet this is just what is being done with our forces. The good men are getting out and the culls are taking their places. What is required is more co-operation and less criticism, as no man or department knows it all. Locate the weak spots and remove the cause by placing the responsibility where it belongs. Then economy and efficiency will follow.—Maintenance of Way Bulletin.

The 239th Battalion Railway Construction Corps, has removed its headquarters from the corner of Hastings and Horner Streets, to 175 Cordova St. West, Vancouver. Recruiting is reported to be progressing at a good rate among railway men in British Columbia and Alberta under the charge of Lt. Col. J. W. Stewart.

To protect a Swiss railway from frequent avalanches numerous snow retaining walls have been built on a mountain side at points from which the slides start, to hold the snow until it melts.

Canadian Northern Railway Construction, Betterments, Etc.

Steel Rails.—The company is reported to have been asking quotations for 25,000 tons of steel rails for 1917 delivery. It is also said that the company is enquiring in the United States for 50,000 tons for next year's delivery.

Mount Royal Tunnel and Terminals.—A press report states that work on the tunnel and terminal facilities is being progressed with satisfactory, and that it is expected they will be ready for operation in the autumn.

Montreal-Ottawa-Port Arthur Line.—The section of the line connecting the Mount Royal terminals with the present line at Hawkesbury is rapidly approaching completion, and it is expected it will be ready for operation in the autumn.

Western Lines.—Six stalls are being added to the locomotive house at Port Arthur, Ont., the locomotive house at Fort William is being enlarged to hold 45 locomotives. Additions are also being made to the plant at Rainy River, Ont.; according to a press report.

We are officially advised that the extension of the freight car repair shop, now under construction in the west yard at Winnipeg, covers an area of 97 x 120 ft. The principal materials employed in the building are concrete, brick, structural steel, timber and skylight work. Four parallel tracks, 97 ft. long, will be laid, which will be extensions of the tracks in the existing freight car repair shop. The contract has been let to the Northern Construction Co., and the work is being carried out under the direction of J. Schofield, architect.

We are officially advised that no decision has been reached as to the suggested extension of the Rapid City Branch to Birtle, Man.

The extension of the company's station facilities at Saskatoon, Sask., is being rapidly proceeded with. The addition will provide new quarters for the dining and sleeping car department office staff.

A press report, July 15, states that a contract has been let to Nesbitt & Co., for the erection of a machine shop and stores building at the Edmonton terminals, at an estimated cost of \$65,000.

British Columbia.—Sir Donald Mann, Vice President, accompanied by M. H. MacLeod, General Manager and Chief Engineer, Western Lines, and a party of New York financial men, have completed a trip of inspection over the company's lines in the West. The party was in Vancouver July 10, and while there Sir Donald and Mr. MacLeod were in consultation with the city authorities respecting False Creek terminal matters. Sir Donald is reported to have said the company has \$5,000,000 on hand for the terminal construction, and there is no reason why the plans under the agreement should not be carried out. The company is building a 30-car ferry with passenger accommodation to run between the mainland and Patricia Bay, Vancouver Island. Arrangements will be made with the British Columbia Electric Ry. so that its cars will connect with the ferry service at both ends. The company's own track between Port Kells and New Westminster bridge is being ballasted, and new rails of the same standard as those on the main line will be laid. The company will ultimately have grain elevators at Port Mann and Vancouver. The plant at the Port Mann car shops, Sir Donald added is sufficient for the next five years, but it is proposed to add such a plant as will be able to turn out five cars a day. This is necessary,

as more freight originates there than is coming to the terminal, and this means that empty cars have to be hauled across the continent.

The contract for the erection of the company's station building on the False Creek site has been awarded to Carter, Halls, Aldinger and the Northern Construction Co., Winnipeg, who tendered jointly. A local press report on July 11 said: "Out of five bids received that of the Northern Construction Co. and Carter, Halls, Aldinger, Winnipeg and Vancouver, was the lowest, being \$574,929. Other tenders were Walter Hepburn, \$587,000; McDonald, Nettleton & Bruck, \$592,000; B.C. Construction & Engineering Co., \$620,956; Skene & Christie, \$699,276." Ac-

ording to the agreement with the city council, the company has to expend \$1,000,000 on the station, and on July 12, the city council's railway committee instructed the City Solicitor to write to the company's Toronto office asking how the \$400,000 difference between the contract price and the amount agreed to be spent is to be expended. The company's engineers have been marking out the site of the building and the contractors are getting the preliminary work done.

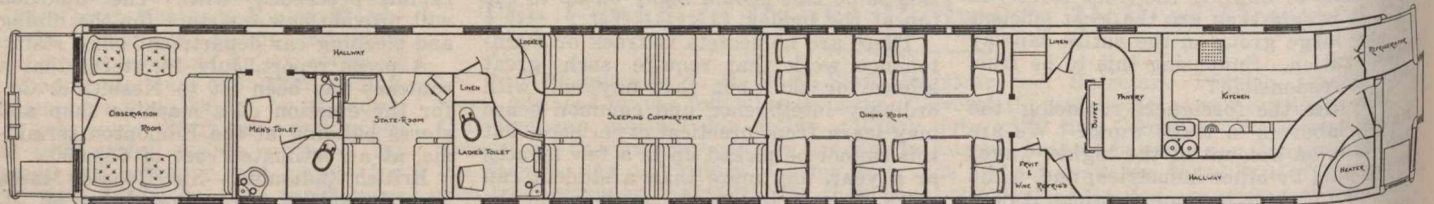
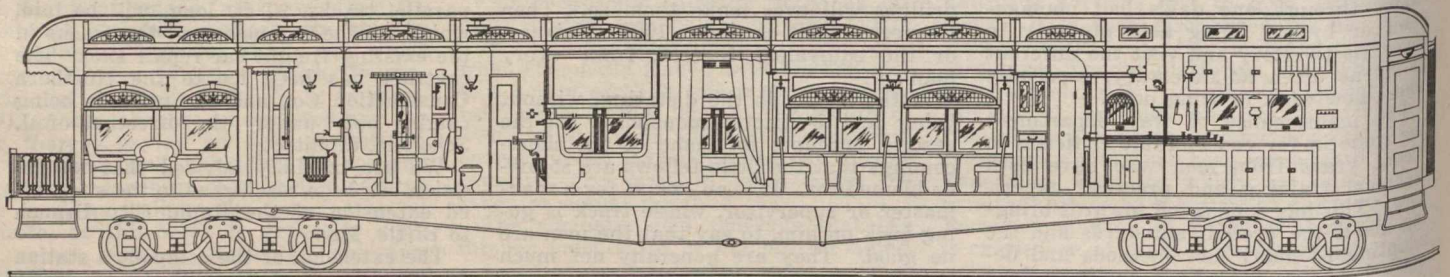
A suggestion was made to the New Westminster City Council, July 7, that the C.N.R. and the C.P.R. should be asked to build a union station in that city, as a solution of the difficulties in the way of the C.N.R. securing a right of way into the city. (July, pg. 278.)

Combination Sleeping, Dining and Observation Cars, Canadian Northern Railway.

The Canadian Northern Ry. had three sleeping cars of the disappearing berth type built by the American Palace Car Co., which were introduced by that company several years ago, but which apparently failed to meet with success on the various roads on which they were operated. They were so arranged that the

ated that such a car would be capable of handling the sleeping car business under ordinary conditions, and in the event of the increase of the sleeping car business, a standard sleeping car might be added, the combination car affording ample dining accommodation for both cars.

The layout of the three converted cars



Combination Sleeping, Dining and Observation Car, Canadian Northern Railway.

berths were secured on vertical rods, which, on being turned, elevated the berths from storage box recesses under the floor for night use, the berths being lowered into the recesses during the day, so as to be entirely out of the way. As their operation was not attended with any sufficient degree of success to warrant continuing them in service, the three cars were in reality useless in their then form.

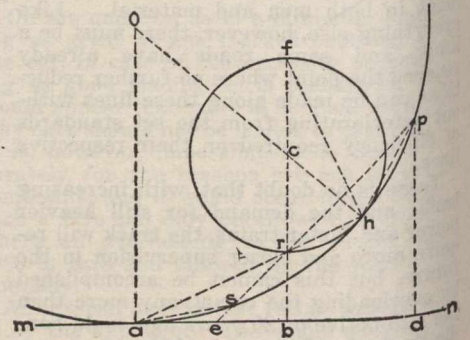
The idea was conceived of converting the cars to meet present day practice, by introducing the present type of folding berth. This necessitated the complete remodelling of the cars, and in consequence, it was decided to rebuild them as combination sleeping, dining and observation cars, at a cost of about \$6,000 a car. It was planned that they might be used as guard cafe parlor cars, be leased to a private party of from 10 to 12, be used as private cars to carry executive or official parties over the line, or be used over lines on which the night travel was too light to warrant the use of separate sleeping and dining cars. For the latter purpose, the line from Winnipeg to Prince Albert was considered, as it was estim-

is shown herewith. At one end there is a small observation compartment, back of which, in the order named, are the men's lavatory, a standard state room, women's lavatory, four standard berth sections, dining room with four tables, pantry and kitchen. The four tables in the dining room accommodate 16, but in the event of the car being used for private party work, these tables might be replaced by a central large table accommodating 12. The kitchen and pantry are standard for cafe parlor cars.

The principal expense in converting the cars resulted from the replacement of the substructure, which involved new sills and the removal of the heavy elevating screws and undergear pockets. The interior finish of the cars is cherry in the kitchen, and mahogany in the body. The curtains are of silk faced pantasote, and the trimmings of Persian brass, except in the vestibules, where they are of bronze. They are lighted by acetylene. The overall length is 72½ ft. The body weight is 100,650 lbs., and the truck weight, 36,100 lbs., making a total weight for each car of 136,750 lbs.

A Railway Turnout Problem.

A problem that is not uncommon in detail location of railway tracks is treated by C. G. Edwards, Southern Pacific Co., San Francisco, by the following interesting method. The problem was to run in a curve from a given tangent to pass through a given point



Turnout Problem, Geometrical Solution.

and to pass at a prescribed distance from the corner of a building. The point and the corner of the building are supposed to be tied in to the tangent. In the sketch mn is the given tangent, p the given point and c the corner of the building. A circle rhf is drawn around c with

the prescribed clearance distance ch as radius. The required turnout is represented by the curve shp with centre at o. Join a and h. This line intersects the small circle at r, which is in the vertical line below c, as can readily be shown by similarity of the triangles chr and oha. Draw other construction lines as shown. The triangles asr and phr are similar, which gives the equation $sr \times rp = rh \times ar$. Also the triangles abr and rhf are similar, which gives the equation $rh \times ra = rb \times rf$, substituting which gives $sr \times rp = rb \times df$. In this equation all quantities except sr can be calculated from the known positions of points c and p with respect to the line mn. Then sr is computed, and from it se and sp can be found. As ae is a mean proportional between se and sp, the beginning of the curve is fixed. It is then a simple matter to find the radius.—Engineering News.

Saskatchewan University's School of Engineering will not re-open this year, the entire faculty and most of the students having volunteered for overseas service.

**Canadian Railway
AND
Marine World**
ESTABLISHED 1898.

Devoted to Steam and Electric Railway,
Marine, Express, Telegraph, and Railway and Canal
Contractors' Interests.
Official Organ of various Canadian Transportation
Associations.

Published on the first of each month.

ACTON BURROWS, LIMITED - Proprietors,
70 Bond Street, Toronto, Canada.

ACTON BURROWS, A.Can.Soc.C.E.
Managing Director and Editor-in Chief.

AUBREY ACTON BURROWS - Secretary and
Business Manager.

Associate Editors
JOHN KEIR AND DONALD F. KEIR

Canadian Business Representative,
W. H. HEWITT, 70 Bond Street, Toronto

United States Business Representative,
A. FENTON WALKER, 143 Liberty St., New York

European Business Representative,
J. MEREDITH MCKIM, 16 Regent St., London, Eng.

Authorized by the Postmaster General for Canada,
for transmission as second class matter.

Entered as second class matter, July 25, 1913, at the
Postoffice at Buffalo, N.Y., under the Act of Congress
of March 3, 1879.

SUBSCRIPTION PRICE, including postage any-
where, \$2 a year.

SINGLE COPIES, 20 cents each, including postage.

The best and safest way to remit is by express money
order. Where one cannot be obtained, a post office
money order, or bank draft, payable at par in Toronto,
may be sent. Cheques or drafts not payable at par in
Toronto cannot be accepted. Remittances should be
made payable to Canadian Railway and Marine World.

NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.
ADVERTISING COPY must reach the publishers by
the 10th of the month preceding the date of publication.

TORONTO, CANADA, AUGUST, 1916.

PRINCIPAL CONTENTS.

Appointments, Transportation	328
Birthdays of Transportation Men	309
Board of Railway Commissioners—	
Eastern Freight Rates Case	307
Orders by, Summaries of	314
Traffic Orders	329
Board to Enquire into Canadian Railway	
Situation	319
Canadian Government Railways' General	
Manager at Fort William	313
Locomotives	316
Canadian Northern Ry. Construction	325
Sleeping, Dining and Observation Cars ..	326
Canadian Pacific Ry. Construction	331
Co-operation in Labor Problems	325
Electric Railway Department	332 to 340
Canadian Electric Railway Association's	
Annual Meeting	340
Finance, Meetings, Etc.	339
Montreal and Southern Counties Ry. Ex- tension	332
Montreal Tramways Co.'s Franchise	339
Ottawa Electric Ry. Employes' Agreement ..	335
Projects, Construction, Etc.	338
Snow Plough Operation	334
Toronto Ry. Rights on Yonge St.	336
Toronto Suburban Ry. Connection at Lamb- ton	334
Express Companies, Among the	347
Express Rates on Fruit	313
Freight and Passenger Traffic Notes	318
Grain Handling Facilities at the Head of the Lakes	323
Grain Rates, Saskatchewan to Minnesota ..	331
Grand Trunk Ry. Black Rock Station	330
Lumber Loading of Flat Cars	324
Mainly About Railway People	321
Marine Department	341 to 347
Canada's Mercantile Marine, Development and Future	341
Car Ferry Service, Port Maitland, Ont., to Ashtabula, Ohio	342
Great Lakes Transportation Co.'s New Vessel	347
Sault Ste. Marie Canals Traffic	343
Vessels Registered	346
Water Pollution on the Great Lakes	343
Railway Great Eastern Ry. Construction	308
Railway Development	317
Railway Earnings	320
Railway Finance, Meetings, Etc.	315
Railway Mechanical Methods and Devices ..	311
Railway Rolling Stock Notes	320
Railway Statistics	312
Telegraph, Telephone and Cable Matters ..	348
Toronto, Hamilton and Buffalo Ry. Report ..	327

Toronto, Hamilton & Buffalo Railway Annual Report.

The annual report for the calendar year, 1915, shows that the company operates 106.51 miles, of which 4.36 miles is operated under trackage rights, 79.88 miles is main line and 22.27 is branch lines. This is an increase of 14.88 miles, due to the construction of the branch from Smithville to Dunnville, Ont. The report states that the cost of this branch was \$604,954.18 and that preliminary work had been done in connection with the extension of the branch from Dunnville to Port Maitland. "The company," the report says, "has succeeded in acquiring, from the government, the naval reserve lands located at Port Maitland and has purchased additional desirable lands for industrial development along or in the vicinity of the Grand River; the total mileage owned or controlled by the company and available for industrial development at Port Maitland and along the Grand River now approximating 300 acres. Negotiations for the location of manufacturing plants at or in the vicinity of Port Maitland on the land acquired by the company have been under way for some months and there is reasonable probability that during 1916 one or more extensive manufacturing plants will be located. Negotiations are in progress looking to the establishment of one or more car ferries between south shore ports and Port Maitland, and it seems likely that such car ferry service will be installed. Through the location of industrial plants and the establishment of car ferry service a large tonnage of traffic will be obtainable between Port Maitland and Hamilton, and, therefore, it has been decided to push to early completion the construction of the line from Dunnville to Port Maitland and to proceed with the construction of docks and other facilities to enable the company to economically and efficiently handle the contemplated traffic. Assurances have been given by the government that such dredging, in Port Maitland Harbor and in the Grand River, will be done as will ensure a depth of water sufficient for the handling of the largest vessels operating on Lake Erie."

On account of the amalgamation of the Erie and Ontario Ry. (under which charter the Smithville, Dunville, Port Maitland line is being built), the authorized amount of capital stock was increased from \$5,000,000 to \$5,500,000 and the amount outstanding from \$3,500,000 to \$3,512,500. The funded debt had been reduced by \$150,000 and stood on Dec. 31, 1915, at \$5,405,000. An act of Parliament was assented to April 8, 1915 authorizing the issuance of consolidated mortgage bonds by the amalgamated companies (the T. H. & B. Ry. and the E. & O. Ry., not to exceed \$10,000,000). The directors determined that it would be unwise to issue bonds under the authority of the E. & O. Ry. charter, but decided instead to finance the present and future requirements of the company for capital through the issuance of consolidated mortgage bonds, secured by mortgage on all the company's property. A proposition was made to the owners of the section of mortgage bonds, amounting to \$1,000,000, to accept stock of the company at par in exchange for such bonds at par, and arrangements to this end have been practically agreed upon. With this accomplished, it is proposed to reserve sufficient of the consolidated mortgage bonds to protect and provide for the outstanding first mortgage bonds

aggregating \$3,280,000, thus leaving available for sale, as and when the needs of the company shall require, approximately \$6,720,000 in amount of such consolidated mortgage bonds.

Following is a summary of operating results, etc., as compared with the year 1914:—

	1915	1914
Operating revenue	\$1,404,319.55	\$1,335,672.19
Operating expenses	899,636.37	972,110.26
Difference	\$504,683.18	\$363,561.93
Current expenses	12,498.43	8,172.43
Net operating income ..	\$492,184.75	\$355,389.50
Other income	132,093.92	149,957.15
Gross income	\$624,278.67	\$505,346.65
Deductions	301,466.47	284,054.35
Net income	\$322,812.20	\$221,292.30
Dividends ..	.....	105,000.00

Transferred to credit of profit and loss

\$322,812.20 \$116,292.30
The profit and loss account, which stood at \$948,920.24 at Dec. 31, 1914, was increased to \$1,295,481.70 at Dec. 31, 1915.

The general balance sheet shows as follows:

LIABILITIES.	
Capital stock	\$3,512,000.00
Funded debt	5,405,000.00
Government and local aid	358,100.00
Working liabilities	1,474,224.26
Current liabilities	1,474,224.26
Deferred credits	23,278.97
Unadjusted credits	57,722.98
Appropriated surplus	421,599.42
	\$12,571,865.11
ASSETS.	
Road	\$7,291,712.41
Investment since 1907	2,809,958.11
Equipment	2,202,041.39
Other investments	359,686.38
Working assets	690,227.99
Deferred debit items	17,438.83
Profit and loss credit	1,275,481.70
	\$12,571,065.11

TRAFFIC STATISTICS.	
Freight train miles	134,492
Passenger train miles	304,967
Special train miles	877
Non revenue train miles	3,236
Total train mileage	443,572
Revenue locomotive mileage	732,415
Non revenue locomotive mileage	7,581
Freight car mileage	4,815,227
Passenger car mileage	1,343,925
Special car mileage	9,567
Non revenue car mileage	74,485
Total revenue freight, tons	1,929,069
Total company freight, current tons ..	8,098
Revenue freight current one mile tons ..	69,901,665
Company freight current one mile tons ..	200,480
Freight current one mile per mile of track	656,292
Average distance of haul, miles	36
Average amount received, per ton	\$0.47
Amount received per ton per mile, cents ..	1.28
Interline passengers carried	347,736
Local passengers carried	164,553
Commutation passengers carried	73,956
No. of revenue passengers carried on lines	16,972,938
No. carried one mile, per mile of road ..	171,236
Average distance carried, miles	28.95
Average received per passenger	\$0.63
Average per passenger, per mile, cents ..	2.16
Passenger service train revenue per mile	\$4,064.59
Passenger service train revenue per train mile	\$1.32

C.P.R. "Family Gathering." Some 200 C.P.R. officials, from all over the system, representing the operating, mechanical, traffic, and other departments, met in Winnipeg, July 17 to 20 to discuss subjects relating to the various departments' work, the object being to secure even greater efficiency and to stimulate the whole staff. C. E. E. Ussher, Passenger Traffic Manager, Montreal, presided. Those attending were given a welcoming luncheon by A. M. Nanton, of Winnipeg, one of the company's directors, at which the Lieutenant Governor and the Premier of Manitoba and the Mayor of Winnipeg spoke.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Government Railways.—W. C. ROBERTS has been appointed Auditor of Stores and Mechanical Accounts. Office, Moncton, N.B. (See also National Transcontinental Ry.)

Canadian Northern Ry.—J. HAWKINS has been appointed Road Foreman of Locomotives, Rideau Jct., Ont.

Canadian Pacific Ry.—C. A. LANGEVIN, heretofore Travelling Passenger Agent, Canadian Northern Ry., Montreal, has been appointed City Passenger Agent, C.P.R., Quebec, Que., vice G. J. P. Moore, transferred.

W. F. HEFLIN, heretofore Yardmaster, Sudbury, Ont., has been appointed Inspector of Transportation, Eastern Lines, vice J. W. Wansbrough, whose appointment as Chief Dispatcher, Toronto, was announced in a recent issue. Office, Montreal.

R. G. AMIOT, heretofore chief clerk to First Assistant General Passenger Agent Montreal, has been appointed District Passenger Agent, Montreal.

I. ROTH, heretofore Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., has been appointed Terminal Passenger Agent, C.P.R., Montreal.

G. J. P. MOORE, heretofore City Passenger Agent, Quebec, Que., has been appointed chief clerk to First Assistant General Passenger Agent, Montreal, vice R. G. Amiot, promoted.

F. C. LYDON, heretofore City Ticket Agent, Montreal, has been appointed City Passenger Agent, Montreal, vice A. E. Lalonde, on leave of absence.

H. W. BOWDEN has been appointed City Ticket Agent, Montreal, vice F. C. Lydon, promoted.

R. JOHNSON has been appointed Excursion Agent, General Passenger Department, Montreal.

M. W. BARD, heretofore Trainmaster Chicago, Burlington & Quincy Rd., has been appointed Assistant Superintendent, District 1, Eastern Division, C.P.R. Office, Farnham, Que.

O. M. LAVOIE, heretofore dispatcher, Farnham, Que., has been appointed Chief Dispatcher, District 1, Eastern Division, Farnham, Que.

W. B. BROWN, heretofore Assistant Superintendent, District 2, Eastern Division, Montreal, has been appointed Chief Dispatcher, Ottawa.

J. A. MCGILL, heretofore Travelling Passenger Agent, Chicago, Ill., has been appointed City Passenger Agent, Ottawa, Ont., vice T. Mullins, whose appointment as City Passenger Agent, Toronto, was announced in our last issue.

T. A. WILSON, heretofore Assistant Superintendent, District 3, Lake Superior Division, Schreiber, Ont., has been appointed Assistant Superintendent, District 5, Eastern Division, vice W. Coulter, on leave of absence. Office, Smiths Falls, Ont.

N. BERGER, heretofore Roadmaster, Schreiber Subdivision, Lake Superior Division, Schreiber, Ont., has been appointed Roadmaster, Smiths Falls, Ont., in charge of construction work in connection with the enlargement of the yard there.

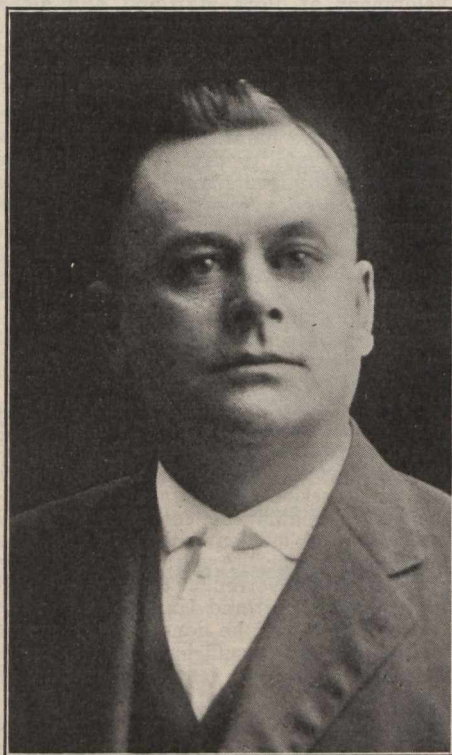
J. W. WANSBOROUGH, heretofore Inspector of Transportation, Eastern Lines, Montreal, has been appointed Chief Dispatcher, District 1, Ontario Division,

Toronto, vice J. E. Ryan, whose appointment as Car Service Agent, Eastern Lines, Montreal, was announced in our last issue.

In announcing the appointment of T. COLLINS as Superintendent, District 4, Ontario Division, vice Allan Purvis, recently, it was stated that his office is at Toronto. It is at London.

V. T. BOUGHTON, heretofore Resident Engineer, District 2, Lake Superior Division, Chappleau, Ont., has been appointed Resident Engineer, District 1, Lake Superior Division, vice H. R. Miles, transferred. Office, Sudbury, Ont.

A. O. WOLFF has been appointed Resident Engineer, District 2, Lake Superior Division, vice V. T. Boughton, transferred. Office, Chappleau, Ont.



M. W. Bard,
Assistant Superintendent, District 1, Eastern
Division, Canadian Pacific Railway.

W. J. STINSON, heretofore Trainmaster, District 5, Eastern Division, Smiths Falls, Ont., has been appointed Assistant Superintendent, District 3, Lake Superior Division, vice T. A. Wilson, transferred. Office, Schreiber, Ont.

D. WILSON, heretofore section foreman, District 1, Lake Superior Division, has been appointed Roadmaster Schreiber Subdivision, Lake Superior Division, vice N. Berger, transferred. Office, Schreiber, Ont.

A. J. IRONSIDES, heretofore District Master Mechanic, Edmonton, Alta., has been appointed District Master Mechanic, Winnipeg, vice G. Twist, transferred.

C. HOOD, heretofore Trainmaster, Nelson, B.C., has been appointed Trainmaster, Saskatoon, Sask.

G. TWIST, heretofore District Master Mechanic, Winnipeg, has been appointed District Master Mechanic, Medicine Hat, Alta., vice A. West, transferred.

A. WEST, heretofore District Master Mechanic, Medicine Hat, Alta., has been appointed District Master Mechanic, Ed-

monton, Alta., vice A. J. Ironsides, transferred.

J. D. FRAINE, heretofore conductor at Medicine Hat, Alta., has been appointed Trainmaster, Nelson, B.C., vice C. Hood, transferred.

G. C. MCKAY, heretofore City Passenger Agent, Chicago, Ill., has been appointed City Passenger Agent, Detroit, Mich. W. C. ELMER retains the position of City Ticket Agent at Detroit.

D. I. LISTER, heretofore chief clerk, Passenger Department, Chicago, Ill., has been appointed City Passenger Agent, Chicago, Ill., vice G. G. Mackay, transferred.

K. A. COOK has been appointed chief clerk, Passenger Department, Chicago, Ill., vice D. I. Lister, promoted.

Canadian Pacific Ocean Services, Ltd.—J. R. SHAW, heretofore Passenger Agent, Manila, has been appointed General Agent, Passenger Department, Shanghai, China, vice A. J. Blaisdell, deceased.

G. L. COURTNEY, heretofore of Greer, Courtney & Skene, Ltd., Shipping Agents, Vancouver, B.C., has been appointed to a position at Hong Kong, China.

Central Vermont Ry.—P. D. FITZPATRICK, Valuation Engineer, has also been appointed General Roadmaster, vice W. P. Elrod, resigned. Office, St. Albans, Vt.

H. P. BOYCE has been appointed Travelling Passenger Agent, St. Albans, Vt., vice S. M. Driscoll, resigned. (See also Grand Trunk Ry.)

Grand Trunk Ry.—R. E. ORR, heretofore acting Trainmaster, has been appointed Trainmaster, Districts 8, 9, and 10, Belleville Division, Ontario Lines. Office, Lindsay, Ont.

R. A. GILL, heretofore Soliciting Passenger Agent, Portland, Me., has been appointed Travelling Passenger Agent, Toronto, reporting to the District Passenger Agent there.

C. S. PROCTOR, heretofore Travelling Passenger Agent, Toronto, has been appointed as a special representative of the Passenger Department at Camp Borden, Ont., reporting to the District Passenger Agent, Toronto.

R. W. THOM, heretofore agent at Collingwood, Ont., has been appointed agent at Camp Borden station, Ont.

A. M. DURNFORD has been appointed agent at Collingwood, Ont., vice R. W. Thom, transferred.

G. L. BRYSON, heretofore chief clerk, City Office, Detroit, Mich., has been appointed Travelling Passenger Agent, Kansas City, Mo., vice C. N. Wilson, resigned.

W. GRANT, heretofore joint ticket agent, Central Vermont Ry., and New York, New Haven & Hartford Rd., New London, Conn., has been appointed Travelling Passenger Agent, G.T.R. and Central Vermont Ry., Boston, Mass., vice J. M. Shea, resigned.

Grand Trunk Pacific Ry.—W. P. HUTCHISON, heretofore Resident Manager, Macdonald Hotel, Edmonton, Alta., has been appointed Resident Manager, Fort Garry Hotel, Winnipeg.

J. V. HENDERSON has been appointed Resident Manager, Macdonald Hotel, Edmonton, Alta., vice W. P. Hutchison, transferred.

National Transcontinental Ry.—W. N. INGRAM has been appointed acting Mas-

ter Mechanic, District 5, Edmundston, N.B.

A. V. REDMOND, formerly in service of N.T.R. Commission, has been appointed Resident Engineer, District 2, Cochrane, Ont., vice H. J. Black, enlisted for overseas service with No. 1 Construction Battalion.

M. J. SHERIDAN, heretofore Roadmaster, Hearst Subdivision, Grant, Ont., has been appointed Roadmaster, Cochrane Subdivision, vice P. Houston, transferred. Office, Cochrane, Ont.

P. HOUSTON, heretofore Roadmaster, Cochrane Subdivision, Cochrane, Ont., has been appointed Roadmaster, O'Brien Subdivision, vice W. R. Murray, resigned. Office, Cochrane, Ont.

G. DUFF has been appointed Road-

master, Hearst Subdivision, vice M. J. Sheridan, transferred. Office, Grant, Ont.

Niagara, St. Catharines & Toronto Ry. —A. S. DAVIS has been appointed City Passenger Agent, for the summer, at Niagara Falls, N.Y.

Timiskaming & Northern Ontario Ry. —W. H. HARPER has been appointed acting Auditor of Receipts and Car Accountant, vice R. H. Mitchell, Auditor and Car Accountant, enlisted for active military service. Office, Toronto.

T. J. GRACEY, heretofore Accountant, has been appointed Auditor of Disbursements and Accountant. Office, Toronto.

H. W. TESKEY has been appointed Freight Claims Agent and Chief Clerk to Auditor of Receipts and Car Accountant. Office, North Bay, Ont.

in Canada would no longer include peas. The matter as presented has a bearing on the general issue as involved in the classification, and the matter should stand until the classification is before the Board and dealt with. In view of the time the existing rate situation has existed, this disposition does not appear to be unfair to the parties.

Edmonton, Dunvegan & British Columbia Ry.'s Tariff.

25124. July 5. Re application of Edmonton, Dunvegan & British Columbia Ry., under sec. 327 of the Railway Act, for approval of its Standard Mileage Freight Tariff, C.R.C., 20, cancelling C.R.C. 1. Upon the report and recommendation of the Chief Traffic Officer, it is ordered that the said tariff be approved.

Specifications for Cheese Boxes.

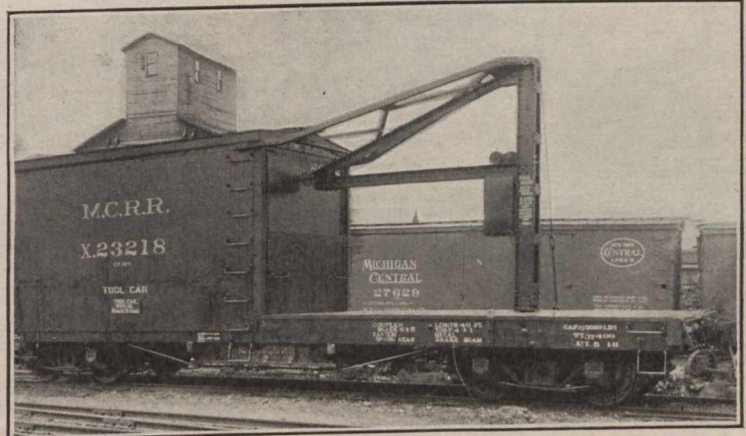
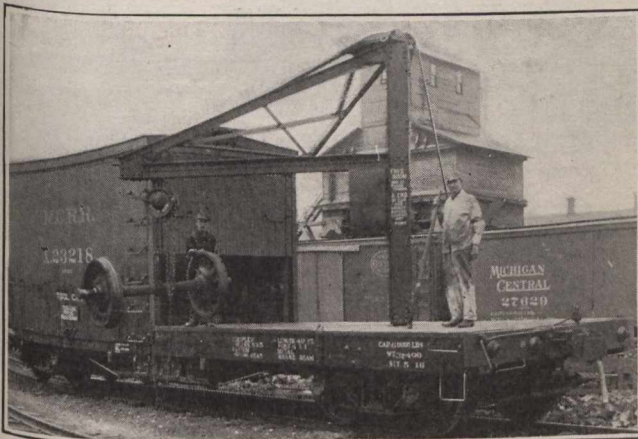
25143. July 7. Re order 24188, Sept. 18, 1915, approving of proposed Supplement 5 to the Canadian Freight Classification 16; and the order 24837, Mar. 28, 1916, extending the effective date of the item on page 9 giving specifications for cheese boxes, until Aug. 1, 1916. Upon reading the submissions filed on behalf of the parties interested; and upon hearing a deputation of cheese manufacturers and cheese box manufacturers, also representatives of the Montreal Board of Trade, the Montreal Produce Merchants' Association, and the Canadian Freight Association, it is ordered that the said item be amended as follows, viz.:

Traffic Orders by the Board of Railway Commissioners.

Interswitching at London.

25050. June 10. Re application of London Railway Commission for an order requiring the G.T.R. to interswitch cars from the London & Port Stanley Ry. to the G.T.R. steam tracks under the provisions of an indenture dated April 25, made 1870, between The Great Western Ry. of Canada and The London & Port Stanley Ry. Upon hearing the applica-

der sec. 29 and 227 of the Railway Act, for authority to connect its tracks with the C.P.R. tracks near Chaudiere Jct., and for an order rescinding that portion of order 7490, July 6, 1909, in so far as it refers to a connection with the Ottawa & Prescott Ry. tracks at mileage 56.6 west from Hawkesbury, it is ordered that the applicant company be authorized to connect its tracks with the C.P.R. tracks



Tool Car and Derrick, Michigan Central Railroad.

tion at London, Mar. 10, 1916, in the presence of counsel for the applicant and the G.T.R., and upon reading the further submissions filed, the G.T.R. offering no objection, it is ordered that the G.T.R. be required to interswitch cars as above stated; the interswitching service to become effective not later than July 10, 1916.

Copper Commodities, Rates.

25082. June 17. Re application of the Consolidated Mining and Smelting Co. of Smelter, B.C., for suspension of proposed cancellation of rates on copper commodities from Smelter to points in Eastern Canada, it is ordered that the proposed cancellation of rates on copper commodities from Smelter, Grand Forks, and Greenwood, B.C., to points in Eastern Canada, as shown in C.P.R. Tariff, C.R.C. no. W-2147, effective June 18, 1916, be suspended; and the C.P.R. is hereby required to continue in force the rates on the said commodities to points in Eastern Canada as contained in its Tariff C.R.C. no. W-2056, until further order.

Near Ottawa.

25111. June 26. The application of the Canadian Northern Ontario Ry., un-

near Chaudiere Jct., Ont., as shown on plan and profile on file with the Board, and that order 7490, July 6, 1909, in so far as it refers to a connection with the Ottawa & Prescott Ry. tracks at mileage 56.6 west from Hawkesbury, be rescinded.

Rates on Split Peas.

Commissioner McLean gave the following judgment June 27: The application of Montreal Board of Trade for an order directing that the rates published for the carriage of grain products from Ontario to points in the eastern States be applied also on split peas, and re application of Montreal Board of Trade for disallowance and of the Toronto Board of Trade for suspension of the schedules removing whole peas from the list of articles which take grain rates from and to the aforesaid territories. In this matter, it appears that in the new Canadian Freight Classification which the railways are preparing it is proposed to remove dried peas, whole and split, from the grain section to the vegetable section, thus following the example of the American classifications. While the rating will, as proposed, remain the same as at present, viz., 8th class, the effect would be that tariffs for the movement of grain

Paragraph (a): Add at the end of the paragraph the words, "or four pieces if tongued and grooved."

Tool Car and Derrick, Michigan Central Railroad.

The Michigan Central Rd.'s Canada Southern Division Car Department at St. Thomas, Ont., E. R. Webb, Master Mechanic; N. Marple, General Foreman, have constructed a tool car and derrick for road work at outlying stations where no repair equipment is maintained. The car is a low flat 40 ft. 60,000 lb. capacity standard equipment, and is equipped with derrick and boom and triplex hoist of 2 ton capacity, occupying half the car. The opposite end is enclosed, giving sufficient room for 8 pairs of wheels, jacks, blocking and other necessary equipment, consisting of emergency first aid box, blue flags, lanterns, etc. The primary use for this car is prompt repairs to cars set out along the line, greatly facilitating the handling of wheels and material. We are indebted to J. Jackson, Foreman Repair Tracks, for the foregoing information.

Grand Trunk Station and Office Buildings at Black Rock, N.Y.

The G.T.R. has completed recently the construction of new passenger station and freight office buildings, at Black Rock, a suburb of Buffalo, N.Y., to replace the wooden buildings that had been in service for a number of years, and also to accommodate the increased business at that station. Black Rock is both a customs and immigration port of entry to the United States and in the erection of the new station, quarters were provided for the use of both departments of the government service. The passenger station, customs and immigration offices are combined in one building on the north side of the tracks, and a separate building has been provided, on the opposite side of the tracks, for the agent and his clerical staff. Both buildings are two story brick structures with concrete basements. The passenger station is 118 ft. 7 in. x 35 ft. 1 in., and the freight office building is 117½ ft. x 33 ft. Both have been designed in such a manner as to permit of an additional story being added to them should necessity arise for addi-

the street entrance and connect directly with the general freight offices. A large record room has been provided on the ground floor in the east wing. On the first floor above there is another general freight office 1,443 sq. ft. in area. Accommodation has been provided in the west wing for the Superintendent of Terminals, cashier and their staffs. In the east end a women's rest room and lavatory have been provided. In the basement the men's lavatory, cloak room, furnace room, coal storage and large record room.

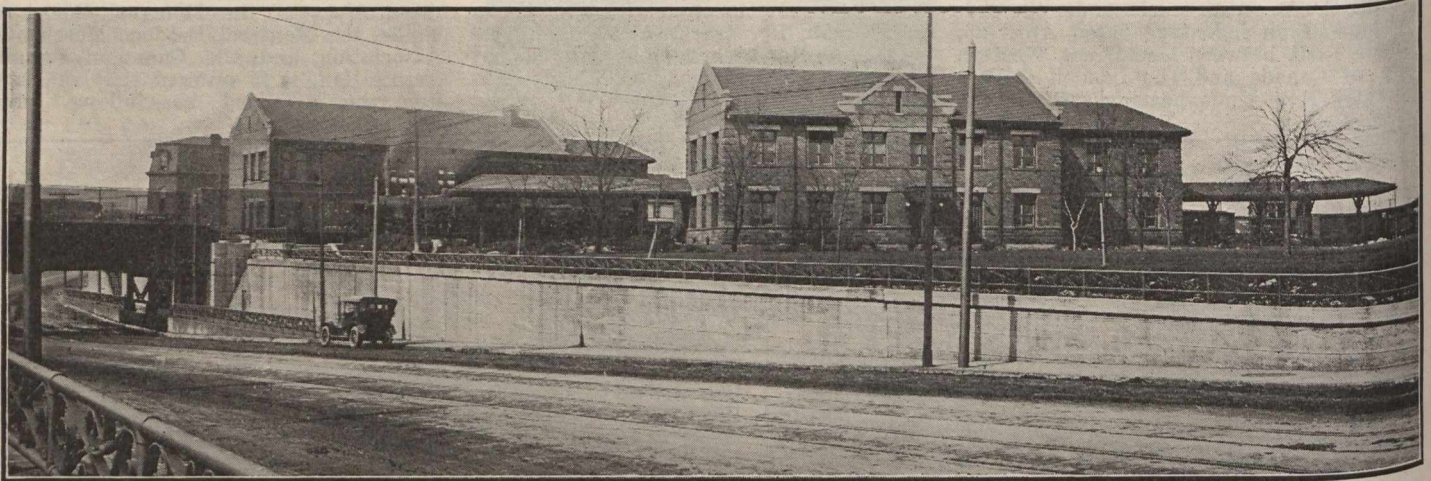
The two buildings are precisely of the same construction and finish. The foundation walls are of concrete carried on wooden piles. The basement walls, to the height of the ground floor window sills, are of rock faced Medina sandstone, and the remainder of the exterior walls are of rough texture facing bricks, with sandstone trimmings. The floors in the basement, lavatories, staircases, halls and baggage rooms are of concrete with mastic finish. Tile floors have been laid in the entrance halls and general waiting

Election of Canadian Electric Railway Association's Officials.

After the report of the proceedings of the C. E. R. A. meeting appearing on page 340 had gone to press, the following officers were elected unanimously,—

President, E. P. Coleman, General Manager, Dominion Power & Transmission Co., Ltd., Hamilton, Ont.; Vice President, C. L. Wilson, Assistant Manager, Toronto & York Radial Ry., Toronto; Honorary Secretary-Treasurer, Acton Burrows, Managing Director, Canadian Railway and Marine World, re-elected for the tenth consecutive year.

Executive Committee, The President, the Vice President, the immediate past President, J. D. Fraser, the Honorary Secretary-Treasurer, and the following,— A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont.; H. G. Matthews, General Manager, Quebec Ry., Light, Heat & Power Co., Quebec, Que.; G. Gordon Gale, General Manager, Hull Electric Co., Hull, Que.; A. Gaboury, Superintendent, Montreal Tramways Co., Montreal; J. S. Mackenzie, Purchasing Agent, Winnipeg Electric Ry., Winnipeg.



Passenger Station and Freight Office Buildings, Grand Trunk Railway, Black Rock, N.Y.

tional space in the future, and a reservation has been made for elevators to be installed in each whenever a third story is added.

The ground floor of the passenger station comprises a general waiting room the full width of the building, a women's waiting room connecting thereto, ticket office, entrance hall and staircase, all in the central portion of the building. The customs offices are confined to the west and with a separate entrance from the track frontage and a passageway connecting with the long entrance hall. The ground floor of the east wing has been entirely reserved for the handling of baggage. All of the first floor is assigned to the immigration department, each room communicating directly with one corridor in the axis of the building. In the basement is a men's lavatory, and a large space has been set aside as a record storage room.

There are three entrances to the freight office building on the opposite side of the tracks from the station, two from Parish St. and one from a side street. The entrances from Parish St. lead directly to staircases and entrance halls, each in turn opening into a general freight office having an area of 1,600 sq. feet. The agent's office, the yard master's office, and the room occupied by the car checkers and manifest clerks are located near

rooms. The balance of the floors throughout both buildings are finished in hard maple. The interior walls are plastered throughout and the roofs are of tile.

A passenger platform of paving brick, 310 x 14 ft. wide, has been laid along the track frontage of the station and extending beyond both ends of it. The space between the eastbound and westbound passenger main tracks has been planked in for 475 ft. parallel to the station platform. An umbrella shelter, 15 ft. wide, has been erected over the brick platform. This shelter is of timber, supported by 8 x 8 in. wooden posts, with cast iron bases 3½ ft. high. The roof of the shelter is hipped and of tile, except the portion immediately in front of the building, which is glazed.

Both the station and freight office buildings and the passenger station platforms are lit by electricity and heated by the furnace located in freight offices basement. The heat is carried from the furnace in the office building to the station by a conduit underneath the tracks. The pipes in the conduit are protected by a thick coating of asbestos, enclosed in terracotta lining and covered on the outside with reinforced concrete.

Both buildings were designed and erected under the supervision of H. R. Safford, Chief Engineer, Grand Trunk Ry., Montreal.

Assistant Secretary, A. A. Burrows, Secretary and Business Manager, Canadian Railway and Marine World.

Legislation Committee,—J. W. Crosby, General Manager, Halifax Electric Tramway Co.; H. M. Hopper, General Manager, St. John Ry.; H. G. Matthews, General Manager, Quebec Ry., Light, Heat & Power Co.; J. D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Ry.; Wilford Phillips, General Manager, Winnipeg Electric Ry.; George Kidd, General Manager, British Columbia Electric Ry.

Grain Inspection at Western Points.

The following figures compiled by the Department of Trade and Commerce, show the number of cars of grain inspected on railways at Winnipeg and other points on the Western Division for June, and for ten months ended June 30, with a comparison of the number of cars inspected for ten months ended June 30, 1915.

	June	Ten months to June 31 1916	Ten months to June 31, 1915
C.P.R.	13,367	166,079	58,839
C.P.R. Calgary	336	6,405	6,330
C.N.R.	9,282	89,521	37,320
G.N.R. Duluth	120	4,965	1,382
G.T.P.R.	1,967	37,441	14,414
Totals	25,072	304,411	118,285

Canadian Pacific Railway Construction, Betterments, Etc.

Steel Rails.—The company has ordered from Algoma Steel Corporation, 30,000 tons, 85 lb. rails, for 1917 delivery. The company is also said to be in the market for 30,000 tons, 100 lb. steel rails, for this year's delivery. As Canadian mills are unable to supply them, enquiries are said to have been made in the United States.

Atlantic Division.—We are officially advised that to facilitate the handling of winter port traffic a third track is being laid from the storage yard at Bay Shore to the docks at West St. John; that additional sidings are being laid at West St. John to accommodate 350 cars; that 98 switches, 56 and 60 lb., and 7.9 miles of 56 and 60 lb. rails are being replaced with 85 lb. rails and switches, and that in connection with this work a rearrangement of switching leads is being made. At West St. John a 4,000 gall. water tank is to be replaced by a steel tank of 20,000 galls. capacity.

All passing tracks between Brownville Jct. and McAdam Jct. are to be lengthened to 3,000 ft., and an 80 ft. steel girder at mileage 43.1, St. John Subdivision, is being replaced with an 8 ft. concrete arch and fill, which together with the reinforcement of bridge 25.25, St. John Subdivision, will permit of the use of heavier locomotives between McAdam and West St. John.

At Holeb, Me., the company will erect three dwellings for the U. S. customs officers, and at Jackman, Me., an office and detention building for the U. S. immigration officers.

Eastern Division.—We are officially advised that the appropriations provide for the following works to be done during this year:—District 1—Lay 7.2 miles of 85 lb. rails on Megantic, Sherbrooke and Farnham Subdivisions; install 25,000 shoulder tie plates on Megantic Subdivision; install 15,488 rail anchors, 85 lb., on Megantic, Newport, Sherbrooke and Farnham Subdivisions; tile drain west ends on Megantic, Sherbrooke and Farnham Subdivisions; provide electric train staff systems, Megantic to Glen River, Megantic Subdivisions, and Lennoxville to Sherbrooke and Sherbrooke to Black Forest, on Sherbrooke Subdivision; replace old culverts with concrete pipes in 109 locations in Megantic, Sherbrooke, Newport, Drummondville, and St. Guillaume Subdivisions; replace Howe truss bridge over G.T.R. at Quebec Central Ry. connection, Sherbrooke Subdivision; provide additional yard tracks at Sherbrooke; provide a Y track at Milan; for a subway and road diversion at mileage 31, Newport Subdivision; to replace pile trestles in Notre Dame St. bridge, St. Pie branch, St. Guillaume Subdivision, with 37 ft. Howe deck plate girder; and lay 13.2 miles 85 lb. rails on Newport and Drummondville Subdivisions; install electric power and plant, equipped with motor drive, in coaling plant at Farnham; tile drain wet cuts in Farnham Subdivision.

District 2.—Lay 1.75 miles, 100 lb. rails in Montreal terminals; install 5792 rail anchors, 100 and 85 lb., in Montreal terminals; provide broken stone ballast from Windsor St. Station to Ballantyne St., Montreal terminals; provide passing sidings at St. Luc; change turning machinery at Lachine Canal swing bridge; lay 1.50 miles, 85 lb. rails on St. Luc Branch.

District 3.—Install 8,640 anchors, 85 lbs., Ottawa and Quebec Subdivisions; erect a 5 ft. arch, 6 x 9 ft., Quebec Subdivision; new bridge mileage 26.2 Pile

Subdivision; lay 5.3 miles new 85 lb. rails on Ottawa, Quebec and Laurentian Subdivisions; lay 8.0 miles of 80 lb. rails on St. Gabriel Subdivision; install 60,000 tie plates Quebec and Laurentian Subdivisions; lay 2,650 ft. tile pipes in wet cuts Laurentian Subdivision; build two concrete arches on Maurice Valley Subdivision.

District 4.—Replace pier and abutments, bridge 1.9 Prescott Subdivision, install 2,148 anchors, 85 lb., in Ottawa terminals and Montreal-Ottawa Subdivisions; lay 1 mile 85 lb. rails on Montreal and Ottawa Subdivision; construct southwest Y connection at Hurdman; tile drains for wet cuts, Prescott and Maniwaki Subdivisions; ballast Sussex St. 3.75 miles; and on Prescott Subdivision, 8.75 miles; saw and relay 6.9 miles of 80 lb. rails between Chaudiere Jct. and Kemp-ton diamond.

District 5.—Lay 1.1 miles of single head 100 lbs., and 6.2 miles of 85 lb. rails on Smiths Falls and Chalk River Subdivisions; install 25,000 tie plates on Chalk River Subdivision; install 10,976 rail anchors, Smiths Falls and Chalk River Subdivisions; renew old culverts with concrete in 6 locations on Eganville and Chalk River Subdivisions; rock ballast from mileage 2.6 to 19.00 Smiths Falls Subdivision; lay 4,861 ft. of 4 in., and 6,645 ft. of 6 in. tile in wet cuts at Smiths Falls and Chalk River Subdivisions; install electric alarm bell mileage 82.06, Chesterville, Smiths Falls Subdivision; lay 5 miles of 100 lb. rails and tie plates on westbound track, Smith's Falls Subdivision; additional track and alterations to Smiths Falls yard; ballast 28.5 miles Chalk River Subdivision and 108 single track miles on Smiths Falls Subdivision.

Ontario Division.—We are officially advised that the company is doing practically nothing but maintenance work on this division during this year, outside the building of the line to Camp Borden. At least two-thirds of the buildings between Toronto and Windsor will be repainted and a good deal of painting will be done on other subdivisions—the amount to be done will depend on the labor available—painters are being advertised for all along the division. The company is hauling ballast from Ayr as far west as Windsor, a better quality of gravel being obtainable at Ayr than at Komoka. It is expected that with the use of this gravel the dust nuisance will be abated very considerably if not got rid of altogether. The station at Guelph Jct. is being enlarged, an island platform being built for the Hamilton and Goderich lines traffic and to use in transferring to connecting trains from the main line. Two miles of track between Parkdale and West Toronto are being ballasted with broken stone; ballasting is to be done on the Elora Subdivision, and for a few miles on the St. Mary's Subdivision. Ballasting is nearly completed on 22 miles of the Toronto Subdivision, and on 12 miles of the Trenton Subdivisions.

Saskatchewan Division.—We are officially advised that a contract has been let to W. A. Dutton & Co. Winnipeg, for grading on the 7 mile extension from Vantage to Assiniboia. This extension will connect up the Moose Jaw-Expanse branch now terminating at Vantage, with the line west of Weyburn at Assiniboia. The maximum curvature is 2 degrees. The construction is light prairie work and there are no bridges. The extension will

be completed this season.

The work to be done at Gull Lake, between Swift Current and Medicine Hat, for which tenders for filling 12,500 cubic feet of earth were asked recently is the rebuilding of the dam.

Alberta Division.—We were officially sion from Paliwaki, mileage 75 east from Stirling, to Manyberries, Alta., would be built without delay. Contract for the grading of the additional portion has been awarded to Grant, Smith & Co., Vancouver, B.C. The balance of the work will be carried out by the company's own forces. (July, pg. 285.)

Grain Rates from Saskatchewan to Minnesota.

The Interstate Commerce Commission has issued its judgment in the case of the Spaulding Elevator Co., Warren, Minn., against the C.P.R. and the Minneapolis, St. Paul & Sault Ste. Marie Ry., re alleged overcharge on 2 carloads of oats from Assiniboia, Sask., to Warren, Minn. Following is the judgment:—Complainant is a corporation engaged in the grain business at Warren, Minn. By complaint filed Apr. 19, 1915, it alleges that the rate of 30.3c. per 100 lbs., charged by defendants for the transportation of two carloads of oats from Assiniboia, Sask., to Warren, Minn., was unreasonable and in violation of the long-and-short-haul rule of sec. 4 of the act to the extent that it exceeded a rate of 20c. contemporaneously applicable to Duluth, Minn. The shipments moved over defendants' lines in March and April, 1914, and \$424.80 was collected on 140,200 lbs. of oats, at a rate of 30.3c per 100 lbs. The tariff rate applicable was 29.8c per 100 lbs., composed of a rate of 20c to Duluth and 9.8c back to Warren, so that both shipments were overcharged. Warren is intermediate to Duluth from Assiniboia by the direct route over which the 20c rate to Duluth applied. The maintenance of a higher rate to Warren than to Duluth was not protected by any application of sec. 4. Effective Oct. 1, 1914, after the shipments had moved, the rate to Warren was reduced to 20c per 100 lbs., which rate is still in effect. Both defendants were represented by counsel, introduced no evidence in defence of the rate assailed, and neither one contests the case. We find that the 30.3c rate exceeded the tariff rate applicable and was unlawful; that the 29.8c rate legally applicable was unreasonable to the extent that it exceeded the present rate of 20c per 100 lbs.; that complainant made the shipments involved as described and paid charges thereon at the rate found to have been unlawful; that it has been damaged to the extent of the difference between the charges paid and the charges that would have accrued at the rate herein found to have been reasonable; and that it is entitled to reparation from defendants in the sum of \$144.40, with interest from Apr. 10, 1914. The defendants are, therefore, ordered to pay to the complainants by Aug. 1, 1916, \$144.40 with interest thereon at the rate of 6% from Apr. 10, 1914, on account of unreasonable and unlawful charges collected for the transportation of two carloads of oats from Assiniboia, Sask., to Warren, Minn., and as the present rate has been in force for more than one year, no order will be entered for the future.

Electric Railway Department

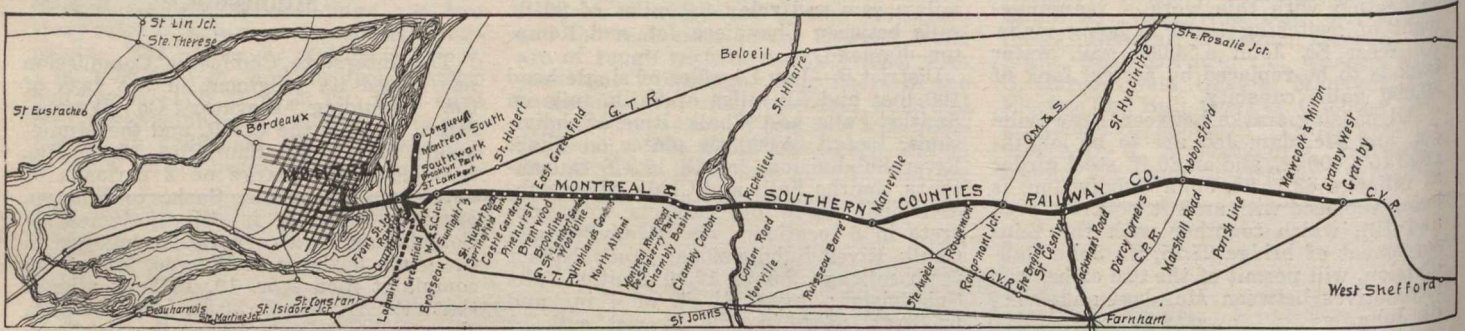
Montreal & Southern Counties Ry. Extension from St. Cesaire to Granby, Que.

The Montreal & Southern Counties is a suburban and interurban railway, connecting the south shore of the St. Lawrence River with Montreal via the Victoria Jubilee Bridge. From a limited service inaugurated in 1909 between Montreal and St. Lambert, 3½ miles, extension after extension has been added, until a large majority of the municipalities of the south shore have been linked together in this chain of development and brought in such close communication with Montreal through frequent service as to make commuting a pleasure. The inter-

pendent, due to the outbreak of war, and it was not resumed again until May 19, 1915, from which date it was carried on uninterruptedly until its completion Dec. 12, 1915. As fast as the track was laid and ballasted, the overhead construction force followed, setting poles and bonding the rails. The work of electrification was carried on by the railway company's force under the direction of G. J. Meyer, Chief Engineer and General Superintendent.

The type of construction used on this section was similar to that employed on

minimum clearance of 6 ft. from gauge. On curves this clearance is increased by 6 in. Bracket type construction was used wherever possible, and consisted of a 10 ft. T iron bracket on which is mounted a malleable iron pin and porcelain insulator which carries the messenger wire. The messenger wire is allowed to ride free in the recess in the insulator, which permits of free adjustment of line between anchors which are located every half mile. Throughout the yards and on a number of the curves cross span construction is used.



Route Map, Montreal and Southern Counties Railway.

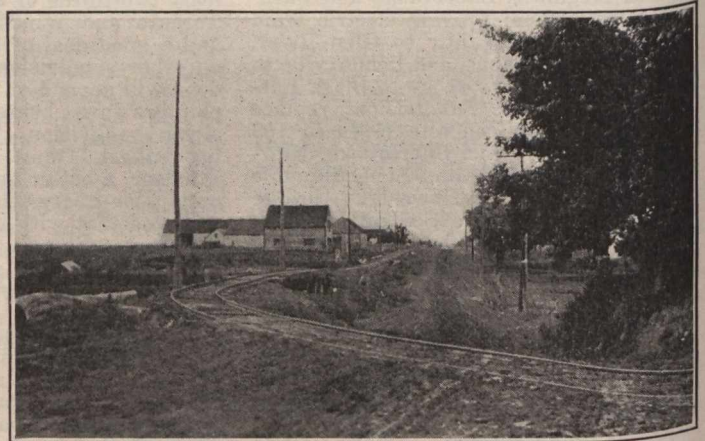
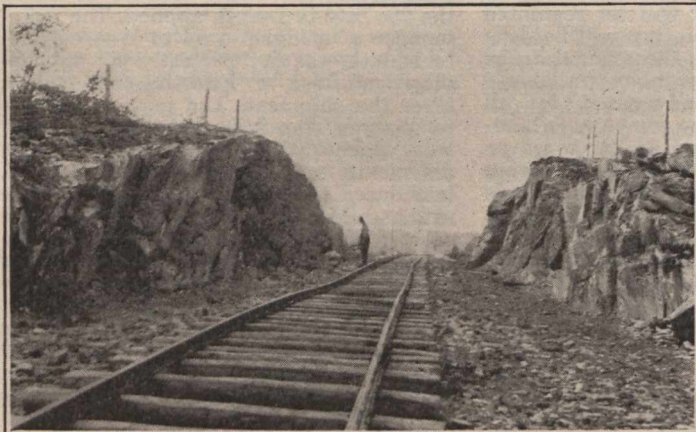
urban arm of this development stretches easterly for 47.5 miles through the counties of Chambly, Rouville and Shefford, the present terminus being Granby, to which place the line has been extended recently from St. Cesaire, 16½ miles, the extension being opened April 30 last. The new line marks a milestone in high speed electric railway development in Canada.

Construction on the new extension was commenced in Oct. 1913, when a contract was let to Ross & McComb to build the

the previously electrified extensions. The bonding consisted of 4/0 concealed type triplex bonds with ⅞ in. terminals 10 in. c.c. for compressing into web of rail.

The overhead construction is of the standard catenary type with 7/16 in. Siemens Martin grade stranded galvanized steel messenger cable, from which, at intervals of 15 ft. is supported a 4/0 B & S gauge American standard grooved hard drawn trolley wire. The hangers are of the floating type, specially designed to absorb the shocks, and consist of three

Supplementing the trolley the entire distance is a 816,000 c.m. aluminum feeder. Taps are run from this feeder to the trolley every ¼ mile. The feeder is carried on glass insulators with oak pine, which in turn are carried on 3½ x 4½ x 4 ft. B.C. fir cross arms with 1¼ x ¼ in x 3 ft. galvanized iron braces. On all curves double cross arms are used, and the wooden pins are replaced by malleable iron ones. The feeder taps consist of 2/0 stranded weather proof wire terminating in a feeder ear attach-



Two Pieces of Track Before Ballasting.

concrete piers to carry the steel bridge across the Yamaska River at St. Cesaire. This bridge, which is of a deck girder type, is 240 ft. long, supported on 4 concrete piers, 80 ft. c. to c. The steel work for the bridge was supplied and erected by the Hamilton Bridge Co. In the spring of 1914 a contract was let to Grant, Campbell & Co., for grading and laying of rails. Work was commenced on May 25, 1914, and sufficient force was employed to complete it and place the road in operation by Oct. 15, 1914. On Aug. 5, however, all construction work was sus-

bolt malleable iron Detroit ear, to which is riveted a ¾ in. wide by ⅛ in. thick strap iron hanger.

Within the town of Granby the construction is cross span with 28 ft. steel poles set in concrete. The poles are built up of heavy tubing 5, 6 and 7 in. diameter. The remainder of the line is constructed with 40 ft. cedar poles with 7 in. top. On tangent the poles are set 150 ft. apart, while on curves the spacing is either 75, 90, or 105 ft., according to the degree of curve.

On tangent track poles are set with a

ed to the trolley, and a 4 bolt aluminum clamp attached to the feeder. A Garton Daniels lightning arrester is installed at each feeder tap.

The telephone dispatching system already in use was extended from St. Cesaire to Granby. The line wires are no. 10 B. & S. gauge hard drawn copper wire carried on side blocks. This line is transposed every third pole in order to counteract the effect of induction. The instruments are the Northern Electric Co.'s selector type.

On the top of the same poles which sup-

port the trolley feeder and telephone, is carried the 25,000 volt transmission line. The type of construction adopted for the transmission line consists of 3 3/4 in x 5 in. x 5 ft. B.C. fir cross arms spaced 5 ft. c.c. and secured to the poles with 5/8 x 14 in. galvanized machine bolts. To the arm is also bolted a 2 1/2 ft. x 2 1/2 in. x 1/4 in. angle cross arm brace. The insulators, which are for 35,000 volt service, are supported

400 k.w. 600 volt, d.c. interpole railway generator and one 6 k.w. direct connected exciter; 3 185 k.v.a. single phase o.i.s.c. 25000/2300 volt transformers; 1 25000 volt 3 phase grounded neutral electrolytic lightning arrester; 1 200 amp. 25000 volt 3 p.s.t. automatic oil switch mounted in separate cells; 2 25000 volt 20-5 amp. oil insulated self-cooled current transformers; 9 300 amp. 25000 volts discon-

quick break switches; 1 200 amp. d.p.d.t. 600 volt quick break lighting switch; 1 100 amp. 600 volt s.p. field switch with discharge clips and resistance; 1 4 point receptacle; 1 rheostat; 1 volt meter, 1 ammeter.

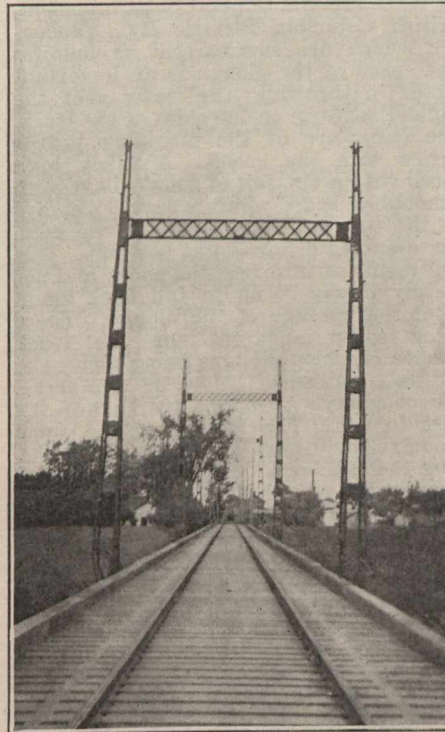
From where the a.c. line enters the building no. 1 B & S gauge hard drawn bare copper wire is used for all busses and connections on the 25000 volt side



Stringing Overhead Work.



Trimming Poles.



Steel Tower over Yamaska River Bridge.

on steel pins with porcelain bases; these insulators are placed 4 ft. c.c. On the upper arm is carried one phase and the ground wire, while on the lower arm are the remaining two phases. No. 4 B & S gauge wire is used for transmission and no. 8 B.W.G. galvanized iron wire is used as ground wire. The ground wire is grounded every 1/4 mile.

A substation 40 x 50 x 23 ft. high, was

necting switches; 3 200 amp. 25000 volt choke coils.

On the a.c. switch board is mounted the remote control for 25000 volt oil switch. The auto starting switch for synchronous motor, combination rheostat, i.e., relays volt meter ammeter, field ammeter power factor meter and field discharge switch. The d.c. board consists of two feeder panels and one

and no. 3/0 B & S gauge r.c. wire on the 2300 volt side. All leads from switch board to motor and from switch board to generator are run under ground in clay conduits. The leads themselves are lead covered, each insulated according to its respective service.

At Abbotsford the company erected a station 17 x 46 ft. It is divided into a passenger compartment, freight and ex-

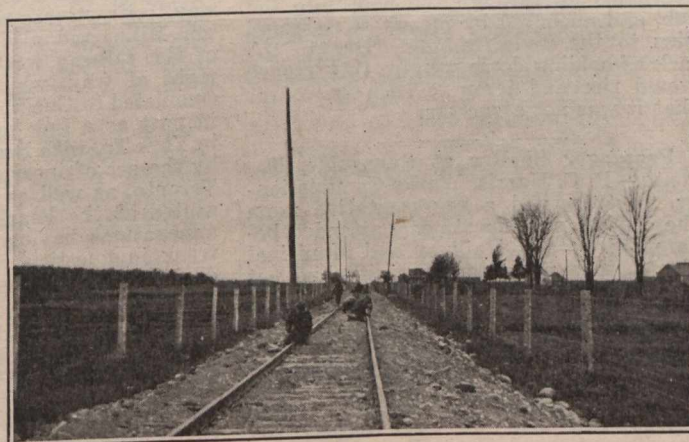


Granby Substation.

constructed just outside the city limits of Granby. On top of the main building is a pent house 10 x 10 x 12 ft. high, with concrete entrance hoods to admit the high tension line. The building is an all-concrete steel and brick structure. The electrical equipment of this substation is as follows: 1. 2300 volt 63 cycle, 756 r.p.m. self starting synchronous motor on a common shaft and bed plate, with one

generator panel. On each feeder panel is mounted 1-1000 amp. 600 volt s.p.s.t. overhead circuit breaker. 1-1000 amp. 600 volt is s.p.s.t. quick beak knife switch one choke coil and one ammeter. On one of the feeder panels is mounted one 800 amp. 600 volt watt. hour meter.

The generator panel is equipped with 1 1000 amp. s.p. circuit breaker with inverse current relay; 2 1000 amp. s.p.s.t.



Bonding the Rails.

press compartment and office. At Granby the company purchased a 3 story brick block, 45 x 60 ft., utilizing the main floor and basement for passenger waiting room, express and baggage.

The officers of the company are: E. J. Chamberlin, President; Frank Scott, Vice President and Treasurer; J. E. Dalrymple, Vice President; J. A. Yates, Secretary, W. B. Powell, General Manager.

Some Difficulties of Snow Plough Operation.

A series of questions were addressed recently to the American Electric Railway Association's question box, regarding some difficulties experienced by one of the member companies in dealing with an unusually heavy fall of snow. Replies to the various questions tasked were sent in by W. G. Murrin, General Superintendent, British Columbia Electric Ry., Vancouver, which are summarized as follows: The speed of the plough is an important factor in throwing the snow over the banks that form on the sides of the track. The curvature of the moulding boards varies with the speed. A fairly high speed with a 6 in. fall of snow will require a moulding board which is curved forward at the top until the metal at the edge has assumed a horizontal position. This will result in throwing the snow, and not merely lifting it up to fall back again after the passage of the plough. There is no reason apparent for the truck frames on snow ploughs being above the journals instead of below, or vice versa, the company's standard trucks are the best to use. The motors on the snow plough should have a clearance of 2 ins. over the rail level. The nose and bottom edge of the plough usually extends down within less than 2 ins. of the rail, therefore if the motor is 2 ins. from the rail, the nose of the plough will remove the snow to a sufficient depth to allow the motors to clear. No substitute has been found for rattan on the sweepers. The best course is to find a substitute for the sweepers, viz., ploughs, which do not have rapidly wearing parts such as rattan. Ploughs with flangers and wing boards properly designed and operated promptly after snowfall begins are more reliable and will do far more work than sweepers. In the British Columbia Electric Ry. service, snow ploughs have been attached to pilots on 50 ton locomotives in regular service, and 4 ft. drifts of snow have been successfully removed. These ploughs follow the general lines of the pilot, nose type and have high moulding boards. A flanger between front and rear trucks has been tried. This is, of course, of the shear type, raised and lowered by means of chains up through the floor into the cab, and anchored by means of rods and pins to the underframing. Due to the lack of holding down weight, this flanger would rise and jump to such an extent that it was not a success.

Passenger Shelter at Sunnyside, Toronto.—R. C. Harris, Works Commissioner, Toronto, and a representative from the city's legal department, attended before the Ontario Railway and Municipal Board, to explain why the city had not carried out the Board's order to erect a passenger shelter at Sunnyside, near the point where passengers change from the Toronto Ry. to the Toronto and York Radial Ry. cars. The portion of the line affected by the order is the old Toronto and Mimico line, which was absorbed by the Toronto and York Radial Ry. and since the expiry of the franchise, has continued to be operated by that company under agreement with the city. D. M. McIntyre, K.C., the Chairman of the Board, in giving his opinion of the matter, said that "the onus for the state of affairs, as described, rests upon the City of Toronto alone, and I regret very much that I am unable to go further and order a shelter to be provided, and to which the public is entitled."

Toronto Suburban Railway's Deviation and Connection at Lambton.

The application of the Toronto Suburban Ry. Co., to the Ontario Railway and Municipal Board, for approval of the deviation of its Dundas St. line, at Lambton Mills, York Tp., near Toronto, to a private right of way, according to plans filed, in order to connect the existing line with the extension to Guelph, now under construction, was dealt with by the Board in a judgment delivered June 20, which covered the history of the company from its incorporation in 1894, under the name of the Toronto Suburban St. Ry. Co. Under its charter it acquired the City Suburban Electric Ry. and the Davenport St. Ry. with all assets and franchises, and was empowered to build railways along certain highways in the township. In 1904 the company had built and was operating certain lines, among them being the one covered by the application, along Dundas St., to, or near, Lambton Mills, from the limits of the City of Toronto. The line at Lambton Mills terminates in a loop, partly on the highway and partly on private right of way. In 1904 the company obtained legislation authorizing it to build a railway from Hamilton, with a branch from Weston to Woodbridge, and also from Weston, or Lambton Mills, to Brampton. A section of that act empowered the company to deviate its line from the highway, provided that no obstruction of the highway shall occur by reason of the deviation, and if the rails of such deviation shall not rise above, or sink below, the ground more than one inch, there shall be deemed to be no obstruction. This right to deviate the line from the highway was made subject to the consent of the municipality concerned, or if such consent is refused, or withheld for two months from the date of the application, then the consent of the Railway Committee of the Ontario Legislature must be obtained. This power was subsequently transferred from the Railway Committee to the Ontario Railway and Municipal Board. The plans filed by the company show the track along Dundas St. as it existed in 1904, and the proposed deviation from the highway to its private right of way at Lambton Mills, and also show the extension of the railway westerly along a private right of way, which is now practically completed to Guelph, and which will serve in part as a link to connect the railway in York Tp. with Brampton, as authorized by the act of incorporation. The City of Toronto, as well as York Tp. was represented at the hearing, owing to certain annexations having brought part of the track in question within the city boundaries. After consideration, the Board declared that there was no valid ground upon which it could withhold the approval sought. No language could be plainer than that of the company's act of incorporation, when the construction of certain lines was specifically authorized, and in the exercise of which authority the company has built a line from Lambton Mills to Brampton. It was urged that the power of the railway to extend its line along any highway is conditional on the consent of the municipality being gained, and that no such extension shall be made without that consent. This is met by the provisions of another section of the act which authorize the company to deviate from the highway to a private right of way, and under the act, this deviation at Lambton Mills, is, in the

Board's opinion, expressly authorized. It is also expressly provided that the deviation shall not be made without the consent of the municipality, and in the event of such permission being refused, the matter shall be decided by the Railway Committee of the Legislature, whose powers are now vested in the Ontario Railway and Municipal Board. The City of Toronto objected on the ground that the radial, or interurban cars would be operated over the street surface tracks, which are now within the city limits, and that the intermingling of the company's local and through traffic would unduly interfere with the local service and introduce conditions of danger that should not be tolerated. On this point the Board felt that if the company has under relevant agreements the legal right to operate its radial or interurban cars over its surface lines in the city, the Board has no power to deprive it of that right, and observation of street railway operation in such cities as Buffalo, Detroit and Cleveland, leads to the conclusion that interurban cars may be operated with safety and without material disturbance of the local service, over surface tracks in large cities. The Board's engineer has viewed the plans and the site of the deviation, and reports that the plan may properly be approved by the Board. At the hearing, York Tp. made no objection to the plan and suggested no alteration to it. The Board decided to issue an order approving the plan and ordering the company to make the deviation subject to the condition of sec. 7 of the Act of 1904 as to non obstruction of the highway. No costs were granted to either party, the applicant, the Toronto Suburban Ry., being ordered to pay \$15 for the stamps on the order.

Regina Municipal Ry. Earnings, Etc.

Following are statistics for June, compared with June, 1915, and the total for six months ended June 30:—

	June 1916.	June 1915.	Jan. 1 to June 30, 1916.
Total revenue ..	\$15,368.55	\$12,311.85	\$103,477.99
Expenses ..	14,044.11	13,658.56	98,970.38
Capital charges..	8,963.80	9,137.58	53,782.80
Operating surplus	1,324.44	.....	.....
Operating deficit.	.....	1,346.61	4,507.61
Total deficit	7,639.36	10,484.19	49,275.19
Expenses per car mile without power ..	13.65	13.93	16.56
Expenses per car mile with power	17.95	18.09	22.08
Platform wages per car hour...	70.47	74.17	72.77
Passengers carried	353,794	257,994	2,313,569
Expenses less capital charges, percentage ..	91.38	.....	.....
Expenses with capital charges, percentage ..	149.71	.....	.....

Freight Distribution by Trackless Trolley Cars. A press report states that the Bradford, Eng., municipality, which owns and operates the tramways, has trackless trolley cars in that city, and inaugurated a general freight traffic system throughout the city, by means of trackless trolley cars. Merchandise of any description and weight is conveyed and the cars are equipped with accumulators supplied through the trolleys, so that they may be operated off the regular routes when necessary to make deliveries away from the overhead equipment.

Ottawa Electric Railway Makes New Agreement with its Men.

The Ottawa Electric Ry.'s conductors and motormen having applied to the Minister of Labor for the appointment of a Board of Conciliation and Investigation under the Industrial Disputes Investigation Act, 1907, the same was constituted, consisting of G. F. Henderson, K.C., representing the company; A. E. Frupp, K.C., M.P., representing the men; and H. P. Hill, who was chosen by the other two and who acted as chairman.

The Board reported July 10 as follows: "We have succeeded in working out an agreement between the company and the men, which is appended hereto. The outstanding feature of this agreement is a change from a 10 hour to a 9 hour day, copuled with an increase of 3c. an hour in the rate of wages, together with a provision for payment of Sunday rate on legal holidays. The granting of this increase by the company, of course, involves a large expenditure, and it was not without considerable difficulty that we were able to bring about this result. The change to a 9 hour day, with the increase above stated, means that the older men get the shorter day without any loss of income, while the younger men get a substantial increase of income. The company was induced to consider this increase in consideration of the fact that during this particular season their source of labor supply is the identical class of men who are expected to offer their services in the defence of the Empire, and it was therefore eminently desirable that nothing should occur that would tend to strain relations between the company and its men. We have reason to believe that the men will now appreciate the fact that the company has acted in such a way as to justify the continuance of the conspicuously harmonious relationship between this company and its men, of which the men have been in the past perhaps even more proud than the officers of the company."

Following is a comparison of the old and new rates per hour:

	Old	New
1st year	23c	26c
2nd year	24c	27c
3rd year and afterwards	27c	30c
Sundays extra	2c	4c
Legal holidays extra .....	..	4c

In their application for a board of conciliation, etc., the conductors and motormen asked for the following pay per hour: Weekday work performed between 6 a.m. and 12 midnight 32c.; weekday work performed between 12 midnight and 6 a.m., 37½c.; Sunday work, 35c. The shop and shedmen asked for pay ranging from 25c to 30c an hour.

Following is a summary of the agreement: The superintendent will receive the men's "grievance committee," at any reasonable time to discuss matters arising between the men and the company.

For motormen and conductors, all runs shall be divided into regular and relief runs, and shall conform as nearly as possible to a 9 hour day. The superintendent will post in the men's waiting room a list of employes in order of seniority, with a schedule of runs. Motormen and conductors shall then have the right, subject to the Superintendent's satisfaction, to choose such runs as they prefer, the senior men to have first choice and so from time to time until all have chosen. Any man failing to make his choice within a time satisfactory to the Superintendent shall forfeit his right to make it and may be allocated to such route as the Superintendent may think proper.

Employes who are members of any committee of the employes or who are officers of any association of the employes, or delegates to conventions of street railway men shall be entitled to leave of absence for the purpose of attending conventions or of doing such committee work or other work as may be necessary, without losing seniority.

Clothing for conductors and motormen shall consist as follows: Summer—Full suit, coat, waistcoat, and trousers. Winter—Trousers every year, overcoat every second year. The company will pay full cost of clothing for all men in service over one year, and half the cost of those in their service first year, uniforms to be supplied not later than May 1 and Oct. 15 in each year. After any article of clothing has been in the possession of a conductor or motorman for three months, it shall become his absolute property. Uniform caps and badges will be supplied by the company without charge.

An employe violating the company's rules shall be warned, when off duty, by the Superintendent, against a recurrence of the same offence, and in the event of the employe being suspended, his case shall be dealt with by the Superintendent, save that any employe suspended or discharged shall have the right to appeal to the President in person, or through the grievance committee, and any employe suspended or discharged and who, upon investigation, is found not guilty of sufficient cause to warrant such suspension or discharge, shall be reinstated to his former position and be paid in full for all lost time.

Cars shall be sent out each morning and night to convey employes to and from their work, the cars to be run on Somerset, Bank, Hull, St. Patrick, Sussex and Gladstone lines. The company shall, where practicable and subject to its regulations, provide seats for motormen and conductors on all cars. All cars shall be equipped each morning, before taken out, with sand, switch bars, brooms, dusters, or any other necessary articles, and all cars, cushions and windows shall be cleaned and in proper condition to go upon the street each morning, the equipping and cleaning of cars to be done by shed men employed for that purpose. Employes shall be given free transportation at all times and on all the company's lines.

The company will not call on any conductor or motorman to perform extra work in excess of his regular schedule day's work of 9 hours except in cases of necessity. Men will not be expected to work beyond a full day's work unless they are agreeable to do so. Motormen and conductors who consent to run extras or trippers before or after day's work shall be paid double time for same. All spare men who show up at the shed for work at 6 a.m. or 6 p.m. and who fail to procure work shall be allowed one hour for so turning up.

Any shop or shed man who works upon a Sunday and who gives at least one day's notice of his desire to be allowed off for one day during that week, shall be so allowed, if practicable, in the Superintendent's opinion. Conductors and motormen required to work on New Year's Day, May 24th, Dominion Day, Christmas Day, Civic Holiday, Thanksgiving Day, or Labor Day, will be paid at Sunday rate.

The company will supply conductors with tickets and change to the extent

of \$35. Students practising as conductors will be required to furnish their own change. The company will furnish a bulletin board in the conductors' and motormen's waiting room upon which employes are to be permitted to post notices of meetings of employes or of any other matters affecting their welfare.

Wages for conductors and motormen shall be as follows: 1st year's services, 26c an hour for week days; 2nd year's service, 27c; 3rd year's services and upwards, 30c. In addition to the foregoing rates, 4c an hour extra to be paid for Sunday work.

Nine hours shall constitute a day's work for all shop and shed men, and the schedule shall be so arranged as to allow one hour off for dinner. No shop or shed men will be required to work more than the regular day's work of 9 hours except in case of necessity. The present shop rules will not be amended except after conference with the grievance committee. Shop and shed men working on Sundays will receive 4c an hour in addition to their regular rate. No man shall work out of his regular turn unless at the request of a representative of the company, and if he works on Sunday out of his regular turn, he shall be paid time and a half. Shop and shed men will be paid Sunday rate of 4c an hour extra for work on all legal holidays. All shop and shed men will receive an increase of 3c an hour in excess of the wages which they are receiving at the date of this agreement. Any shop or shed men called upon to work for more than 9 hours in any day shall be paid at the rate of time and a half for such excess service, except in the event of his being required to work all night when he shall be paid double time from 6 p.m. to 6 a.m.

The company has no objection to any employe being a member of Division 279 Amalgamated Association of Street and Electric Railway Employes of America, and will not discriminate against any employe by reason of his being a member of that organization.

Sunday hours of conductors and motormen are to remain as they are at present. The pits in the sheds shall be equipped with board platforms. The schedule of running times shall be so rearranged as to provide for a lay over of 2 minutes at the end of each run.

All conductors and motormen shall be entitled to not more than 3 months leave of absence in any one year without losing seniority, provided that no conductor or motorman shall receive leave of absence unless his reason for applying for such leave is satisfactory to the Superintendent and is for a time which is satisfactory to the Superintendent, and that the number applying for leave of absence shall not at any time, in the Superintendent's opinion interfere with the practical working of the system.

The paying of the men shall be commenced at 2 p.m. instead of at 4 p.m. as heretofore.

The agreement shall continue in force and be binding on the respective parties until June 30, 1918, and so from year to year after unless and until either party desires a change in it, in which case such party shall notify the other party of the desired change at least 30 days prior to the ending of any year. A notice given to the Minister of Labor under the provisions of The Industrial Act, 1907, and amendments thereto, shall be treated as a notice under this section.

Lethbridge Municipal Railway Operating Results.

The following information is taken from the Commissioners' and Auditors' reports of the City of Lethbridge, Alta., for the calendar year, 1915:

	1914	1915
Expenditure	\$83,255.89	\$71,582.41
Revenue	46,053.56	41,740.51
Deficit	\$37,202.33	\$29,841.90
Gross receipts	\$45,333.00	\$41,020.51
Operating expenses	48,814.00	38,199.01
Operating expenses percentage of earnings, per cent.	108	93.12
Net earnings (exclusive of interest, sinking fund, insurance and taxes)		\$2,821.50
Net loss (exclusive of interest, sinking fund, insurance and taxes)	\$3,477.00	
Passengers carried	1,054,848	844,307
Average daily receipts	\$124.20	\$112.38
Transfers	184,481	49,938
OPERATION AND MAINTENANCE CHARGES.		
Car service	\$11,277.90	
Employes' insurance	144.21	
Electric power	14,864.80	
Track cleaning	1,516.94	
Car house expense	572.79	
Car barn shops	33.06	
Employes' uniforms	340.21	
Sundries . . . . .	.64	
		\$28,750.55
Cars	\$3,307.18	
Motors	1,420.84	
Brakes	531.30	
Tracks	1,080.65	
Overhead	220.11	
Buildings	14.05	
Miscellaneous	106.09	
Tools	14.33	
		6,695.05
		\$35,445.60
ADMINISTRATION AND MISCELLANEOUS CHARGES.		
Salaries	\$1,683.75	
Printing and stationery	158.09	
Advertising	92.91	
Amusements	33.59	
Office expense	84.57	
General expense	232.34	
Commission on debenture coupons	46.44	
Damage claims	176.32	
Audit fee (proportion)	245.40	
		2,753.41
		\$38,199.01
FIXED CHARGES.		
Debenture interest	\$18,801.50	
Sinking fund	8,756.30	
Insurance	682.41	
Taxes	5,143.19	
		\$33,383.40
	1914	1915
Passengers carried	1,054,848	844,307
Car miles	357,938	294,164
Revenue per car mile	12.87c	14.19c
Total cost per car mile	23.26c	24.33c
Passengers per car mile	2.95c	2.87c
Average fare per passenger	4.22c	4.77c

The auditors say in their report:—"The result of the operation of the street railway for the year is a net deficit revenue of \$29,841.90, which has been provided for as in recent years, by taxation. In spite of a diminished revenue the result is a considerable improvement over that returned in 1914. This is largely attributable to reduced operation charges resulting from the change to the one-man system of cars put into effect in the latter part of that year. It was found necessary during the year, owing to the increased cost of electrical power, to increase the charges to this department for that service from 2 to 2 $\frac{3}{4}$ c per k.w.h., which has meant an additional charge for power amounting to \$4,054.00."

The Saskatoon, Sask., City Council has approved its finance committee's recommendation to grant an increase of pay to new hands on the Municipal Ry., from 26 to 27c. an hour. The men asked for an all round return to the old schedule, but the committee decided that the rate paid for all hands, save beginners, compares favorably with that paid in the other prairie cities.

Toronto Railway Company's Rights on North Yonge Street.

As stated in Canadian Railway and Marine World for July the Judicial Committee of the Privy Council on June 23 dismissed the City of Toronto's appeal against the Ontario Railway and Municipal Board's order authorizing the Toronto Ry. to extend its tracks on Yonge St. from just south of the C.P.R. crossing at North Toronto station to Farnham Ave., so as to make close connection with the Toronto and York Radial Ry.'s Metropolitan Division. The judgment which was given out June 26 is summarized as follows:—

Their Lordships remark that the real substance of the dispute depends upon the construction of the agreement of Sept. 1891, between the corporation and the predecessors of the respondents, which granted powers creating street railways. On June 25, 1915, the rights of the Metropolitan St. Ry. ceased over that portion of Yonge St. brought within the city boundary in 1887. Respondents accordingly claimed, in virtue of their agreement, that they were then entitled for the residue of the term to use this portion of the street. Appellants deny that the agreement conferred any such right, asserting that at the date of the agreement the corporation had no power legally to grant any franchise over this portion of Yonge St., consequently the only rights conferred in respect of this area were those which would have arisen if the grant to the Metropolitan Ry. made by York County, had for any reason been found to have been invalid and void.

Their Lordships are quite unable to take this view. No question whatever existed and no doubts had arisen concerning the rights possessed by the Metropolitan. At the date of the agreement the municipal authorities had full power to deal with the franchise of these roads in such a manner as they thought would best serve the interests of the inhabitants. The grant, therefore, was to run street railways in the city for a total of 30 years, with absolute exception in respect of the Island, and a limited exception in respect of those parts of Yonge and Queen Sts. where exclusive rights had been granted by the County of York. The only color of explanation that can be given by the appellants of the distinct grant on the part of the city over the excepted portion of the street is that to which reference has already been made, namely, that the grant to the Metropolitan might be declared to be void, or to have ended before Sept., 1891, a contingency which nobody contemplated, and which there was no reason or justification to apprehend.

The only meaning, in their Lordships' opinion, which the agreement is capable of bearing is that the grant it contained, which was made for good consideration, was a grant which would take effect whenever such antecedent's rights were, for any reason, to cease. It has been suggested in argument that such grant would be beyond the powers of the corporation, as creating a reversionary interest in the franchise of the roads. No authority whatever was produced to aid this contention. Their Lordships are unaware of any principle that could be invoked in its support. It is also said that such power is open to abuse, as, doubtless, are all powers enjoyed by municipal authorities, but it would be a wrong and dangerous method of determining the true limits of such powers to consider the

mischief their improper exercise might produce.

Their Lordships consider that the agreement itself does not, when once the facts are understood, present any real difficulty. It is the manner in which these rights have been confirmed by the statute which gives rise to the only question of uncertainty. The statute, then, in their Lordships' opinion, merely expresses in clumsy and obscure language exactly the same conditions as those expressed in the original agreement. The right and privilege, if any, over the excepted portions of Queen St. which the city at the time and execution of the agreement had power to grant, were rights and privileges, to commence when the existing franchise ended. It is quite true that if that franchise ran its full length, apart from the act of Parliament, there would have been no right or privilege which the corporation could grant at all, but the statute must be read in the light of fact. That agreement was thereby validated and the right and privilege which the corporation had power to grant at the date of agreement must be construed as meaning the right and privileges which the corporation had the power to grant, assuming that the agreement itself was legalized.

The appellants urged strongly that this gave no effect to the words "if any," and that due effect can only be given to these by making the assumption that in certain circumstances no such rights could be enjoyed by the corporation, and this assumption can, they urge, only be satisfied by regarding the grant as one to take effect if existing grants were void, but if assumptions are to be made for which there is no warranty of facts, it would be just as reasonable to assume that the period of existing grants might cover, or be extended so as to cover, the whole period of 30 years. In that case the words "if any," would have just as sensible a meaning as on the other hypothesis. In truth, the words are often needlessly used by way of caution, and it would be unreasonable to give them such weight as to destroy the obvious meaning of the statute or document in which they are contained.

The view expressed by their Lordships was taken by the Ontario Railway and Municipal Board, and in the result by the Supreme Court, but their Lordships think the appellants were right in urging that the judgment of the Supreme Court did not depend upon any independent investigation of the matter, but that they regarded themselves as bound by the judgment of this board in a dispute which related to rights over the portion of Queen St. where a similar question arose in the case of Toronto Ry. v. Corporation of Toronto. In forming this view, their Lordships think the Supreme Court was in error. The judgment referred to did not proceed upon this basis, but upon a ground entirely independent, whether the grant were made subject to rights over Queen St. or no. Throughout this judgment, reference only should have been made to Yonge St. A question of principle which governs one governs others, and there is no need for separate consideration of a second street.

The work of preparing the track allowance on the length of roadway involved is being carried out by the City Works Department, and when this is completed the Toronto Ry. will lay the tracks.

Calgary Municipal Railway's Future.

The last report of the Controller shows that the deficit from the operation of the Calgary Municipal Ry. continues to pile up. In a statement to the press on July 11, Commissioner Graves is reported to have said: "There is too much false optimism. We must exercise sound business judgment. I am an optimist so far as the future of the city or of the country is concerned, yet I am sure we need to exercise the greatest caution and economy for the next four or five years. The people of Calgary are no different from the people of other cities. If they find their street railway system running \$100,000 or more behind every year they are going to protest and grow dissatisfied. While I am connected with the Calgary street railway I do not intend to have it taken over by a private corporation because it has not proved a success by civic administration. A private corporation would make a street railway pay, for it would cut off the dead lines and operate only those that warranted. It may be possible that we will cut off the dead lines in Calgary before the year is out, and if this is not sufficient to protect against a deficit we may increase the fares, the same as was done in Edmonton. But I do not intend that this shall be undertaken when it is too late. When the soldiers go away on Oct. 1, I am sure there will be a great falling off in revenue to the street railway. Then is not the time to act along lines of drastic economy. It is good business to begin economy now and lay by what store we can for the lean seasons. It might be that I am taking an unpopular stand, but it is the stand I intend to stay by if I am expected to administer the street railway department with business judgment. I am not going to allow capitalists or private corporations to take this public utility because of the protests of people who do not thoroughly realize the state of affairs."

Practicability of One-Man Cars.

D. R. Locher, Vice President and General Manager, Corpus Christi Ry. & Light Co., Corpus Christi, Texas, says:—"Experience in the cost of operating one-man cars has been interesting. Five cars were formerly operated, each equipped with two 35 h.p. motors. These cars made 737 car miles daily and used an average of 1,336 k.w.h. of current. Ten cars are now being operated, which make 1,365 car miles a day and use an average of 1,708 k.w.h. of current daily. Eight of these cars are equipped with 17½ h.p. motors and 2 of them with 35 h.p. motors, and in addition a work car was in use on construction work. However, charging all current to the passenger cars, we were able to operate 84% more car mileage with only 27% more power.

"The total result of the three months that these cars with small motors have been operated has been to increase the car mileage 84%, to decrease per car mile earnings 15%, and decrease the operating expense 37% per car mile. The car mileage has not been increased 100%, because 1,600 feet of track on one line has been torn up for the past six months. This fact, together with the increased wages paid the car men, the extra power required and the wages of one extra car cleaner, is the reason that the expenses per car mile have not decreased 50%. The cost of lubrication at journal boxes for

the five cars which were in service for Jan., Feb., and Mar., 1915, was \$45.08. The cost for the same months in 1916, but running twice as many cars and 84% more mileage, was only \$9.31. However, most of this is due to a different method of lubrication adopted on the new cars, and not to any virtue of the new one-man cars."

Preparation for Hydro Electric Railway Construction in Ontario.

T. J. Hannigan, Secretary, Hydro Electric Railway Association of Ontario, had an interview with the Premier and some other members of the Ontario Government recently, in reference to going on with the work in connection with the construction of hydro electric railways. No official statement regarding the interview has been issued. Mr. Hannigan has not responded to a request for one, and his remarks in regard to the matter have been reported in various ways. One report credits him with saying as follows: "The legislation in regard to hydro radials has been criticized on the score that it prevents us from going ahead with any work during the war. That is not the case. I have the assurance of Mr. Hearst that subject to the approval of the Lieutenant Governor in Council—which is, of course, required for all our enterprises—we can go ahead with preliminary work. That means we can complete our final surveys and plans, take options on land for right of way or purchase lands where it can be done to advantage. The Prime Minister pointed out to me that the municipalities would not want to go ahead with actual construction, but that there was nothing in the act to prevent us getting ready."

Six Day Week for Electric Railway Employees.

At the British Columbia Legislature's last session the following section was added to the British Columbia Railway Act:

"186A. (1) The Lieutenant Governor in Council may make regulations limiting the number of days in a week during which employes or any class of employes of a street railway company may be required or permitted to work.

"(2) The power conferred by the next preceding subsection may be exercised notwithstanding the provisions of any agreement respecting hours of labor between a municipal corporation and a street railway company or a street railway company and its employes.

"(3) Every street railway company contravening or committing a breach of any provision of the regulations made under the authority of subsection (1) shall be liable, upon summary conviction, to the penalty provided in section 287."

It is not expected that any regulations will be made by the Government, for the present at least, as an arrangement has been made by the company with its employes that renders Government regulations unnecessary. The company has drawn up new running schedules, which provide for motormen and conductors having one day off work in every eight days, but the company may suspend this rule on holidays, or other occasions when exceptional traffic prevails, requiring the services of all or part of the men who might be due to take a holiday on such day. The company's car barn men and other employes already work only a 5½ or 6 day week.

Jitney Traffic Notes.

Winnipeg city authorities are taking proceedings against every person who is operating a jitney without a license. A large number have been fined during the past month.

According to a statement made by an officer of the Transcona, Man., Town Council, more than \$4,000 a month is paid as fares to the railway companies and to jitney owners for carrying workmen between Winnipeg and Transcona.

A Toronto observer on a recent afternoon walked the entire length of Yonge St., from the C.P.R. North Toronto Station to Front St., during the time when the street was crowded with people, and the street cars well filled with passengers, and saw only two jitney cars in operation.

G. L. Warren, Secretary, Victoria, B.C., Jitney Association, is reported to have said June 29: "The motor traffic bylaw passed by the Esquimalt Council, has absolutely killed the jitney business in that district and there is no possibility of it being revived." The bylaw calls for the filing of a \$5,000 bond for every car used.

The Winnipeg Jitney Owners' and Drivers' Protective Association at a recent meeting discussed what were described as "the absurd bylaws framed to handicap the jitney men." A committee was appointed to engage legal aid to protect members' interests, and a deputation was appointed to wait on the city council to ask for the repeal of sections of the bylaws affecting jitney traffic which were claimed to be "oppressive and useless so far as safeguarding the interests of the travelling public are concerned." The association has over 100 members.

By Mr. Justice Gregory's decision in a British Columbia court the Vancouver City Council's resolution, by which the city license inspector was instructed to accept from jitney owners only bonds of insurance or casualty companies which have Dominion licenses, was quashed. The judge held that the resolution was passed upon an erroneous statement of the law of deposit required; and that the Legislature never intended that the council could create a monopoly or arbitrarily exclude from the position of bondsmen any person or class. The resolution had the effect of excluding one company from becoming bondsmen for the jitney owners, while the evidence showed that bonds of another company which had not a charter right to issue such bonds, were accepted.

Track Auto vs. Jitney.—The jitney of Santa Clara County, Cal., will suffer a hard blow if F. W. Chapin, General Manager, Peninsular Ry. of San Jose, puts into service his invention of an automobile on steel wheels which can be run on the tracks of the electric railway at a cost much less than that of a street car. A trial trip was made over the streets of San Jose and over the mountain route and proved highly successful. Sixteen miles on a grade were operated and only a pint and a half of gasoline and a pint of oil were used and it is thought that the total operating cost will be half of what is required to operate a street car the same distance. It is planned to install these cars which will carry from 15 to 20 passengers; no poles or trolley wires will be required, just the track, as the regular street car wheels are mounted on the automobile.

Electric Railway Projects, Construction, Betterments, Etc.

The Lake Erie and Northern Ry., pending the completion of and electrification of the line into Port Dover, Ont., has been running a steam service between Simcoe and Port Dover, to take care of the holiday traffic. On July 22 the company commenced running through electric cars from Galt to Port Dover, giving a 2 hourly service. At present the cars run only to Main St., Port Dover, but it is said the line will be complete to the lakeside in a few weeks.

In connection with the opening of the line, the development of the lake carrying trade at Port Dover is under consideration. A deputation representing the company, and residents of the district, waited on the Minister of Public Works at Ottawa, July 4, and urged the construction of piers and the doing of certain dredging at the harbor. The plans prepared some time ago for the port showed works estimated to cost \$250,000, for the commencement of which a vote of \$50,000 is available. Surveys are reported to have been made to do some temporary work the nature of which was not stated. It is said that the L. E. & N. Ry. proposes, if the necessary facilities are provided, to operate car ferry steamer between Port Dover and some U. S. port.

London & Port Stanley Ry.—The new station in London, Ont., situated just south of the G.T.R. station was opened June 29. A new ticket office has been erected, and a shelter, capable of accommodating a large number at the station platform has also been provided. The right of way of the L. & P. S. on the property adjoining the G.T.R. is protected by a long ornamental picket fence, passengers thus being afforded protection from incautious trips over the steam line tracks. Tickets for the L. & P. S. are also to be sold through the G.T.R. station ticket office and L. & P. S. passengers are entitled to the accommodation afforded at the G.T.R.. The passage way between the station and the electric line and that of the steam road is guarded by a gate, operated by the signal man in the tower at Richmond St. Another entrance to the city station is provided at Richmond St., immediately south of the G.T.R.

After the opening of the station a special train carried Sir Adam Beck and other members of the London Railway Commission, members of the city council and others to Port Stanley where the rearranged park and new lighting system were declared available for the public by Lady Beck. The Commissioners on July 11 decided to erect a band stand in the park, and a boathouse on the beach at Port Stanley. (July, pg. 295.)

Moncton Tramway, Electricity & Gas Co.—The hitch between the company and Moncton, N.B., city council, with respect to the paving of Main St., was settled at a meeting of the Board of Works, July 7, and the work will be gone on with at once. (July, pg. 295.)

The Montreal & Southern Counties Ry. is going to erect a car barn at Granby, Que.

The car barn and substation which the company is building at Granby, Que., will have a total length of 230 ft., and a maximum width of 62 ft. It will be of concrete, steel and brick construction, with storage capacity for 6 cars. One of the two tracks in the car barn section will be provided with a pit so that all necessary repair work can be carried on. The only

part of the structure which is completed is the substation which is approximately 40 ft. square. Adjoining this will be provided an office and locker room to complete the full width of 62 ft. Adjoining the car barn will be a boiler room and storage for coal. It is expected to start construction on the remainder of the building early in August, and to have it completed before winter.

The Montreal Harbor Commissioners have, we are officially advised, decided to postpone for the present the carrying out of the plans for the electrification of the harbor railway lines, on the ground that it can be held over for some time without any inconvenience being caused.

Port Arthur Electric Ry.—It is reported that considerable repair work has been completed on the North Belt line, Port Arthur, Ont. (May, pg. 200).

Quebec Ry., Light & Power Co.—A new agreement between the city and the company was approved of at a special meeting of the city council committee June 28. The matters affecting the electric car service settled by the agreement, provided for:—The granting of transfer privileges on the Sillery line as far as the city limits at Levis Ave.; to extend the car lines on St. Valier St. to St. Charles Cemetery by Dec. 31, and the connecting line along a route set out on an accompanying plan to Levis Ave. by Sept., 1918; to extend the line in Limoliou Ward on 3rd Ave., by Beauport Road to the city limits by Dec. 31, 1917; to extend other city lines by Dec. 31, 1916; to build a line on 8th Ave. to connect the present line with Beauport Road, and a line in 1st Ave. from Lamontagne Ave. to 4th St. by Dec. 31, 1917; the agreement provides a penalty of \$25 a day for default as to these matters; the total penalty not to exceed \$10,000. Another section provides that subject to the permission of the Railways Department, the company will extend tis line on Champlain St.

These questions were also before the Quebec Public Utilities Commission, and the Board of Railway Commissioners, a joint session being held June 26. After hearing evidence it was decided to wait for the result of the negotiations between the city and the company before making any orders.

We are officially advised that the following new extensions are to be built:—St. Malo Ward, on St. Valier St. (C.P.R. crossing) to the west end of the St. Charles Cemetery, about half a mile. Limoliou Ward, on 3rd Ave. from the intersection of 6th St. with 3rd Ave., up to 16th St., passing through 16th St. up to 4th Ave., going east, and through 4th Ave. to the Abattoir Co.'s buildings; also on 18th St. from 3rd Ave to 1st Ave., to connect at this point with the existing line upon Lamontagne Ave. The total length of these extensions is one mile. (July, pg. 295.)

Saskatoon Municipal Ry.—A press report states that the council proposes to lay about 1,200 ft. of new double track line, in the city, at an estimated cost of \$8,000. This probably refers to the laying of the tracks across the new traffic bridge being built by the province on 25th St. Respecting this work a local paper said recently: "Before the paving of the bridge can be commenced it will be necessary for the city to carry out the work of laying the metals for the street railway across the bridge and also the standards

for carrying the lines for light and power. For this work the city is purchasing the metal from the City of Regina, otherwise some considerable delay would be caused as it would not be possible to obtain the steel from the manufacturers before September. It is estimated that the cost of laying the street railway across the bridge will be about \$9,000. Financial conditions will prevent the city from making the connection with the Second Ave. and University lines for some time. The estimated cost of this work is about \$16,000. Provision has been made underneath the roadway of the bridge for the carrying across of the sewer and water mains, but this, for similar reasons, will have to be delayed for some time." (Sept. 1915, pg. 359.)

The Sarnia St. Ry. Co. signed an agreement, July 7, to take power for the operation of its railway from the Hydro Electric Power Commission. The company will use 500 h.p., so as to have sufficient power for the proposed extensions of its lines to the southern part of the city. (Jan., pg. 30.)

Toronto Civic Ry.—The construction of the new eastern entrance to the Exhibition grounds is being rapidly gone on with and Works Commissioner Harris stated recently that the work would be completed by Aug. 26. The grading to the new bridge across the railway tracks at Bathurst St., is well forward, and gangs of men are at work on Strachan Ave., and at other points. Grading for the right of way for the street railway has been completed as far west as Strachan Ave., and some portions of it have already been ballasted. The joining of the steel bridge which is being erected by the G.T.R., and the wooden structure along the ramps at Bathurst St. require a difficult piece of trestle work, and the concrete footing for this has already gone in. The grading for the approach to the bridge at the Bathurst St. end requires a large amount of filling, the material for which has been secured from the excavations for the footings. The grading operations extend 350 ft. north on Bathurst Street and a considerable distance east on Front St. At the exhibition grounds, where a turning loop is to be provided, the old roller coaster is being taken down to make way for the loading and unloading stations. The coaster will be built on the present site of the chutes. A large portion of the grading is being done by the G.T.R. The street railway line will be operated by the Toronto Ry. (July, pg. 295.)

Transcona, Man.—The proposal to build a line between Transcona and Winnipeg is being revived. It was reported July 6, that New York people were in negotiation with Transcona Town Council. The suggestion is that \$100,000 be expended on construction during this year. The town officers estimate that \$4,000 a month is expended on jitneys and work trains between Transcona and Winnipeg, a large proportion of which would be expended on electric railway fares, provided there was a line. An engineer has gone over the route for a line from the centre of the town to a junction with the Winnipeg Electric Ry. lines. The length of line proposed to be built is 3.25 miles. (Oct., 1915, pg. 404.)

Winnipeg Electric Ry.—The Winnipeg City Council has approved of the laying of a temporary line on Talbot St.

The company is opposing the city coun-

cil's proposal for laying of a belt line from Selkirk Ave. to Logan Ave., via the McPhillip's St. subway, and also a line on McGregor St., between Selkirk and Dufferin St., on the ground that the traffic would be too light to justify the capital outlay. (July, pg. 295.)

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry., and allied companies.—

	July 1, 1915 to July 1, 1914 to			
	May 1916	May 1915	May 31, 1916	May 31, 1915
Gross.....	\$ 542,353	\$512,526	\$6,073,546	\$6,808,470
Expenses	479,523	488,854	5,276,163	5,499,897
Net.....	62,830	23,714	797,383	1,308,573

Cape Breton Electric Co.—

	Jan. 1 to		Jan. 1 to	
	May 1916	May 1915	May 31, 1916	May 31, 1915
Gross.....	\$30,278.31	\$29,611.66	\$148,837.99	\$127,775.12
Expenses	20,035.76	16,410.80	96,040.08	80,255.15
Net.....	10,242.55	10,200.86	52,798.01	48,509.97

Levis County Ry.—A copy of a trust deed in favor of the National Trust Co., dated June 12, was filed with the Provincial Secretary, Quebec, July 10.

London & Port Stanley Ry.—The first year's operation of the L. & P. S. Ry. as an electric line was completed June 30. Speaking at the opening of the new station at Port Stanley, June 30, Sir Adam Beck, Chairman London Railway Commission, said that operation of the line had been successful; the revenues being sufficient to meet operating expenses and fixed charges, and to leave a surplus. The figures for the year's operation have not yet been made public, and no reference was made to any estimated profit at the meeting of the Commission held July 11.

Port Arthur Electric Ry.—

	May	April
Total earnings	\$8,163.30	\$7,334.31
Car mileage	50,456	44,260
Passengers carried	189,665	166,476

Toronto Ry., Toronto & York Radial Ry., and allied companies.—

	July 1, 1915 to July 1, 1914 to			
	May 1916	May 1915	May 31, 1916	May 31, 1915
Gross.....	\$903,924	\$795,262	\$4,450,708	\$4,022,505
Expenses	446,050	420,459	2,299,125	2,152,304
Net.....	457,874	374,803	2,151,583	1,870,201

Winnipeg Electric Ry.—

	Jan. 1 to		Jan. 1 to	
	May 1916	May 1915	May 31, 1916	May 31, 1915
Gross.....	\$276,980	\$263,302	\$1,446,788	\$1,496,707
Expenses...	173,703	176,552	903,851	959,708
Net.....	103,277	86,750	542,937	536,999

Mainly About Electric Railway People.

Mrs. R. R. Knox, wife of the Traffic Superintendent, Winnipeg Electric Ry., died on July 10.

E. J. Burdick, heretofore Superintendent of Power and Overhead, Detroit United Ry., Detroit, Mich., has been appointed Assistant Manager.

James D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Ry., spent a portion of July at the Gatineau Fish & Game Club, Gracefield, Que.

A. S. Davis has been appointed City Passenger Agent, Niagara, St. Catharines, and Toronto Ry., for the summer season, at Niagara Falls, N.Y.

Lt. Col. Fearman, Chief Accountant, Dominion Power & Transmission Co., is in command of the 120th Battalion (Hamilton) which was ordered to remove eastward from Niagara Camp recently.

C. J. Yorath, City Commissioner of Saskatoon, Sask., spoke on civic government, at the Saskatchewan Union of Municipalities' annual conference at Swift Current, June 30.

W. K. George, Toronto, President, London & Lake Erie Ry. & Transportation Co., and one of the Dominion Government directors of the Canadian Northern Ry., left Toronto in July for England for a short visit.



Martin N. Todd, General Manager, Lake Erie & Northern Railway.



Lieutenant-Colonel G. C. Royce, General Manager, Toronto Suburban Railway.

D. M. McIntyre, K.C., and A Ingram, of the Ontario Railway and Municipal Board, visited Detroit, Mich., during July, to study the arrangements for dealing with interurban cars, as well as city cars, on the streets.

G. H. Rapsey, who is one of the Port Arthur, Ont., Public Utility Commissioners and who has been acting as Secretary

of the commission since V. Shipway resigned, is to devote a larger portion of his time to the work and will be given a salary.

W. H. Radford, son of W. J. Radford, Assistant Manager, Toronto Suburban Railway, who was a corporal in the London Rifle Brigade, was killed in action at the front July 1, while helping a wounded soldier. Before enlisting he was in the oil department of Pearson & Co., contractors, etc., London, Eng.

Mrs. N. C. Pilcher, widow of the late Major Pilcher, of the 5th Mounted Rifles, and General Manager, Sherbrooke Ry. & Power Co., who fell at Ypres, and her little son have returned from England, where they were to have met Major Pilcher when he went to England on furlough. She is now at her home in Sherbrooke, Que. She received the news of her husband's death a few hours before the time she expected to meet him.

Lt. Col. Geo. Cooper Royce, Secretary-Treasurer and General Manager, Toronto Suburban Ry., who has been in the company's service since Oct. 1, 1901, has been a commissioned officer in the Queen's Own Rifles, Toronto, since Aug. 21, 1893. He was appointed a lieutenant colonel Sept. 27, 1915, and was officer commanding the alien prisoners internment camp at Kapuskasing, Ont., from Jan. 12 to July 20, 1916, when he left to command the additional battalion which is being raised in connection with the Queen's Own Rifles for overseas service.

John W. Moyes, who has been "absent" from Canada for many months, owing it is alleged, to his connection with the Ontario West Shore Ry. fiasco, applied to the Toronto City Council recently for several hundred dollars balance claimed to be due for services rendered in valuing the Toronto Ry. Co.'s property when the city was endeavoring to buy it. Subsequently an application was made at Osgoode Hall on behalf of M. G. Cameron, Goderich, Ont., a judgment creditor for \$126,000, due to shareholders in O.W.S.R., for an order that any money due to Moyes be paid into court, and this was granted.

Martin N. Todd, General Manager, Lake Erie & Northern Ry., which is now practically completed from Galt to Port Dover, Ont., was educated at Dr. Tassie's school, Galt, Ont., and in 1875 entered railway service with the New York Central Rd., and served in the freight department for two years, after which he was appointed town ticket agent for the Great Western Ry., and agent, American Express Co., Galt, Ont. On the absorption of the G.W.R. by the Grand Trunk Ry., he was appointed town ticket agent, G.T.R., and subsequently joined his father in the milling business, and assisted him during the promotion and construction of the Galt, Preston & Hespeler St. Ry., and after his father's death in 1899 he was appointed President and General Manager. In 1898 he was also appointed General Manager, Lake Erie & Northern Ry.

The Montreal Tramways Co's Franchise.

Mr. Justice McLennon on June 28, ordered the issue of a permanent injunction against the City of Montreal, forbidding it to consider proposals for the renewal of franchises submitted in the past, and ordering the city to pay the cost. This finally settles the question which has been before the courts during the past 12 months, and puts the city in a position to

begin negotiations with the company over again.

Following that decision a letter from E. A. Robert, President, Montreal Tramways Co., was submitted to the Montreal Board of Control, July 14. A press dispatch says this letter stated that in return for a 30 year franchise, and the right to carry mails and freight, the company would surrender all existing franchises; give a uniform fare of 5c, except during certain hours when workmen's tickets will be available; and pay the city \$200,000 a year for 5 years, \$300,000 a year for the next 5 years, \$400,000 a

year for the third 5 years, and \$500,000 a year for the rest of the term. Reports of the discussion in the Board of Control say that the Mayor stated that the suggested agreement was not acceptable without modifications. The matters to which objections are taken include the absence of mention of transfers, and of the sale of 6 tickets for 25c; the amounts to be paid the city by the company; and the fact that a 30 year franchise is asked for. The Board decided to make a study of the proposed agreement, and to have reports from the city officers before discussing the matter in detail.

Canadian Electric Railway Association's Annual Meeting.

The annual meeting held at the Royal Canadian Yacht Club, Toronto, July 26 and 27, was well attended by officials of member companies throughout the Dominion and was very successful in every way. The chair was occupied by the President, James D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Railway.

The Niagara Falls Park & River Railway and the Three Rivers Traction Co. were admitted to membership by unanimous vote.

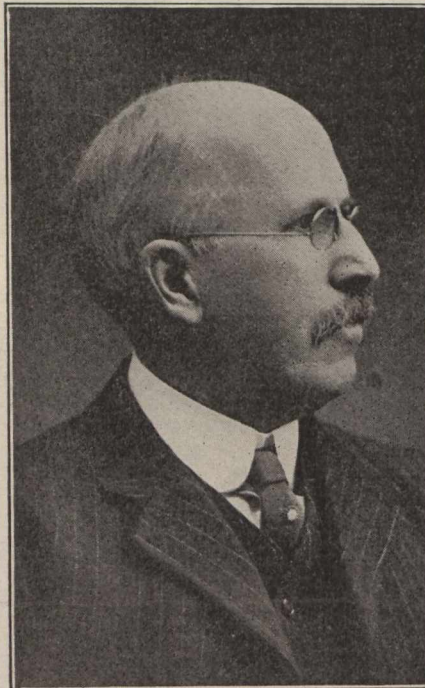
The Honorary Secretary-Treasurer, Acton Burrows, Managing Director, Canadian Railway and Marine World, presented a very comprehensive report dealing with the Association's work during the past year and covering a wide range of other subjects, including the following: Membership, information for member companies, information for non member companies, representation at American Electric Railway Association's convention, transportation of postmen, standard specifications for steel rails, contributory negligence in accident cases, lavatory arrangements on interurban cars and at stations, trolley wires at crossings of railways and protection by trolley guards, regulation of vehicle traffic for protection of electric car traffic, platforms on interurban railways, coasting, experience with rotary converters and motor generator sets, inspection of trolley wires, electrolysis and system of track bonding, car mileage records, lubricating oil contracts, cost of lubricating cars and motors, wages of employes, staff of employes sufficient to meet requirements of traffic, conductors and motormen running the same cars all the time, school children's tickets, workingmen's tickets, financial statement.

A report from a special committee on the standardization of steel rails for electric railways prepared by its chairman, W. F. Graves, Chief Engineer, Montreal Tramways Co., was discussed and finally adopted.

The following papers were read and discussed: Traffic conditions in Vancouver and their relation to street car traffic, by W. G. Murrin, General Superintendent, British Columbia Electric Ry. Gearing and gear ratio for railway motors, by W. G. Gordon, Transportation Engineer, Canadian General Electric Co.; Dispensing with juries in damage actions against railways, by F. B. Griffith, Superintendent, Interurban Railway Division & Claims Agent, Dominion Power & Transmission Co.; Problems confronting electric railway officials, by F. S. Livingston, Traffic Manager, Toronto & York Radial Railway. The above mentioned papers are copyrighted by the Associa-

tion and will be printed in its annual proceedings and distributed to officials of member companies.

On both days of the meeting the representatives attending took luncheon at the Royal Canadian Yacht Club, the



James D. Fraser,
Director and Secretary-Treasurer, Ottawa Electric Railway,
who presided at the Canadian Electric Railway Association's Annual Meeting.

charming situation and surroundings of which were much enjoyed, and made it an ideal meeting place under the hot weather conditions prevailing.

After the adjournment of the afternoon session of the first day of the meeting the representatives attending were entertained by the Toronto & York Radial Ry. and the Toronto Suburban Ry. They were met at the R.C.Y.C. city wharf by C. L. Wilson, Assistant Manager, and F. S. Livingston, Traffic Manager, representing the Toronto & York Radial Ry., and by R. Gilbert, Purchasing Agent, representing the Toronto Suburban Ry., and were motored to the Lambton Golf Club, where they dined, and then returned to the city and attended a performance at the Royal Alexandra Theatre.

The list of officers elected for the current year will be found on another page in this issue.

Electric Railway Notes.

The Montreal Board of Control on July 3, decided to recommend the city council to pass a bylaw legalizing the carrying of freight over the city streets by the Montreal Tramways Co., subject to adequate restrictions.

The London Railway Commission has decided to protest against the business tax proposed to be levied by the London City Council on the ground that the commission is really only a lessee of the London & Port Stanley Ry.

A tentative agreement between the London Street Ry. and the London City Council respecting the operation of Sunday cars was reached July 15. The terms of the settlement wait final approval of the city solicitor and city council.

The Calgary, Alta., Municipal Ry. has started the operation of one man cars on the "blue line." This is one of the lines which does not meet the cost of operation, and this is an experiment in order to reduce the cost, while continuing to give a fair service.

The Brantford Railway Commission decided July 18, that the heads of departments will carry on the management of the street railway and other electric utilities pending the appointment of a successor to L. G. Ireland, who resigned to enter Hydro Electric Power Commission of Ontario service.

The London and Lake Erie Ry. and Transportation Co. has put in operation a reduced fare from London to Port Stanley and return, making the fare every day 30c, with half fare for children. The London & Port Stanley Ry. reduced its fare between the same points early in the year to 40c with a 25c rate for children every day in the week except Wednesdays and Saturdays, when a 30c rate was in operation on the lines.

The British Columbia Electric Ry. has put in operation on its English Bay line, Vancouver, a new type of open observation car which was altered from an old type at the company's shops at a cost of about \$500. All the superstructure practically has been removed and the seats have been rearranged so that the car will now seat 53 persons. One new feature is the centre entrance. The gates are of glass and are operated by levers by the conductor. The back half of the car is available for smokers and the front portion may then be used by women and children. The removal of the vestibule at the front and rear gives much more room than in an ordinary car as well as fine positions for observation as the car passes along. An ingenious arrangement connected with the gate mechanism pushes the steps out to meet the passenger. When the gates are shut and the car is travelling the steps are folded up under the car. The car is an experiment, and if it is favorably received by the public others will be built and used during the summer.

The Toronto Ry. and the Avenue Road Subway. The City of Toronto's legal department received a cable from England recently to the effect that the Privy Council had dismissed the appeal of the Toronto Ry. against the order of the Board of Railway Commissioners, assessing it for a portion of the cost of building the subway across Avenue Road. The Toronto Ry. claimed that the Board had no jurisdiction in the matter so far as the T.R. is concerned, and also that the city is obliged, according to its agreement with the company, to provide right of way for the company's tracks.

Marine Department

The Development and Future of Canada's Mercantile Marine.

By A. A. Wright, Managing Director, St. Lawrence and Chicago Steam Navigation Company.

Whenever I hear freight rates being discussed I wonder how many people realize the wonderful cheapness of present day water transportation as compared with the cost of it when men who are now middle-aged were boys. It is a curious fact that the cost per bushel of capacity was, up to the time of the outbreak of war, exactly the same for modern steel vessels as it was for the early wooden vessels that plied on the Great Lakes, namely, approximately \$1 a bushel. For example, in the early seventies, probably the schooner *Bermuda*, which had a capacity of about 8,000 bush., would be a fair example of the type of bulk freight boat on the Canadian side of the Great Lakes. This vessel cost to build about \$8,000, and was engaged in carrying barley from Toronto to Oswego at from 2½c. to 3c. a bush., bringing coal back from Oswego to Toronto at 60c. a ton, a distance of about 130 miles. It is the same today for the latest type of vessels. Figure out the cargo capacity in bushels of wheat and you have the standard of cost.

But while the cost of vessels per bushel capacity has remained the same, the freight charges have steadily decreased. To get an idea of the great advance which has been made in cheapening transportation by the enterprise of Canadian vessel owners it is only necessary to contrast the rates paid on long distance freight in the seventies. The present rates are 30c. a ton on coal, Cleveland or Buffalo to Fort William and Duluth, 700 to 1,000 miles, and 7c. a bush. on wheat from Fort William to Montreal, 1,273 miles. The records supply plenty of material for contrast. For instance, about 1872 the steamer *Canada*, owned by the late Capt. J. B. Fairgrieve, of Hamilton, with a capacity of about 14,000 bush. wheat through the Welland Canal, received 30c. a bushel on a cargo of wheat from Chicago to Montreal. About the same time the schooners *Annie Mulvey* and *White Oak* received 27c. a bushel on wheat from Chicago to Kingston.

Again, in 1877, the schooner *Twilight*, with a capacity of from 400 to 450 tons, received \$2.10 a ton from the Consumers' Gas Company for carrying coal from Cleveland to Toronto; the average current rate at that time being from \$1.90 to \$2 per ton; and, even at these apparently extraordinary rates to us, none of the men operating them became wealthy out of the operation of vessels.

On the completion of the present Welland Canal, allowing boats of about 256 to 260 ft. long by from 40 to 43 ft. beam to operate between Lake Ontario and the Upper Lakes, a marked change took place in the class of vessel and in the current rates. Thus, in 1888, the Canadian fleets were strengthened by the steel steamships *Rosedale* and *Algonquin*. These were built in Great Britain, the former at Sunderland and the latter at Yoker, near Glasgow, and were brought out and put in commission between Fort William, Georgian Bay, Kingston and Buffalo. The *Rosedale* was the first steamship to carry a cargo through from London, Eng., to Chicago. This cargo consisted of 5,000 barrels of cement. The *Rosedale* was built to the full size at that time of the St. Lawrence Canals, which

were not as large as the new Welland Canal, and her first cargo of wheat from Fort William to Kingston was 37,500 bush. The *Algonquin* was brought up through the St. Lawrence Canals in two parts and joined together, and had a capacity of 70,000 bush. wheat through the Welland Canal and 95,000 bush. on Upper Lake draught. The *Rosedale* was afterwards lengthened by the addition of 72 ft., when she carried about 67,000 bush. through the canals and about 80,000 bush. on Upper Lake draught. In connection these two vessels, it may be interesting to note that the *Rosedale*, 28 years after she came out, loaded a cargo of deals in the St. Lawrence for a British port, and the *Algonquin* is now being fitted out to go back to salt water.

After the *Rosedale* and *Algonquin* very little increase in Canadian tonnage took place until about 1899, when the *Turrets* and the package freighters *Ames*, *Pellatt* and *Plummer* were brought out and put in the trade between Montreal and Fort William. At this date the entire Canadian fleet of steel steamships, including the C.P.R. freight and passengers steamers *Manitoba*, *Athabasca* and *Alberta*, only had a carrying capacity of about 600,000 bush. wheat per trip. From 1899 forward, however, the fleet grew very rapidly until before the present war, when a very large number of the full Welland Canal sized steamers, which could get out to sea, were sent out to salt water to help out the shortage of vessels on the ocean. The capacity has grown to approximately 10,000,000 bush. of wheat per trip, consisting of vessels with a carrying capacity of from 70,000 bush. each, of the smaller Welland Canal sized boats, to steamships like the *Midland Prince*, *Emperor*, *E. B. Osler*, *J. H. G. Hagarty*, and *W. Grant Morden*, each with a capacity per trip of from 310,000 to 465,000 bush. of wheat, or from 9,000 to 13,000 tons of coal each trip. This remarkable development of Canadian shipping on the Great Lakes has been brought about entirely by the enterprise of private individuals and companies taking advantage of the deeper and larger channels provided by the Canadian and United States Governments. The vessel capacity for moving coarse bulk freight like coal, grain and ore has more than kept ahead of the development of the country at large.

A great deal of misapprehension exists in the public mind, and apparently in the minds of some of our legislators, regarding water transportation, and resolutions have been brought before Parliament in recent years, suggesting regulating freight rates on the lakes and putting bulk freight boats under the Board of Railway Commissioners. These men apparently fail to grasp the fact that the lakes are free to anyone who cares to build or buy and operate a steamship, and that it is impossible for any man, or body of men, to control transportation rates on the Great Lakes, so long as this freedom exists. The records show clearly that whenever exceptional conditions have arisen—and they are always cropping up every few years—whereby a larger quantity of bulk freight is offering than in normal times and rates advance, this has

been followed by an increase in tonnage, with the consequence that rates immediately drop, and probably for a year or more vessels will be carrying bulk freight at cost and often at considerable loss, and then return to fair rates as business increases.

The history of water transportation from the beginning of the world shows that free competition among individuals not only keeps rates down so that coarse, low priced products can be moved long distances cheaply, but the keenness of this competition has led to such an improvement in the size and class of ships that the tendency up to date has been steadily towards lower rates, and this, in spite of the fact that the cost of operation of vessels has been increasing annually, while the initial first cost of a vessel, according to her carrying capacity has remained comparatively stationary. The cost of operating has advanced in the last 10 years approximately 40%, and, in spite of this fact, rates by water have been reduced on the Great Lakes to the lowest point anywhere in the world. In round figures, where boats get reasonable dispatch, freight is moved on the lakes for approximately one tenth of the cost of moving by rail for the same distance.

Some discussion has taken place recently in Parliament regarding the encouragement of shipbuilding in Canada, on the ground that vessels are scarce at present, and it is very unfortunate that from the report in the press the subject did not seem to be very well understood by the men who took part in it, as they seemed to think that the only solution was the starting of shipyards. It is true there is a temporary shortage of ships on the ocean, but really none on the inland waters of Canada. In this connection, it might be interesting to note that owing to the extraordinary demand for iron ore by the smelters adjacent to the Great Lakes, there is a keen demand for vessel capacity at present, yet there is really no shortage of vessels, as is proved by the fact that ships moved through the Sault Canals in May, 1916, 66% more coal and ore and over 180% more wheat and grain than in May, 1915. The actual figures are over 10,000,000 tons of ore and coal, and over 53,000,000 bush. of wheat and other grain in one month. Even if there were twice as many vessels, practically no more could have been moved, for the docks and elevators have been working to their capacity. A mere statement of this fact should convince anyone that it is not only shipyards which are wanted to secure a larger development of Canada's mercantile marine, but encouragement for the men who have the money and ability to manage ships to employ them profitably in carrying Canadian products. One of the first steps needed in this direction is to preserve Canadian trade for Canadian vessels by intelligent coasting laws and the removal of needless restrictions.

Among other things tending to prevent the full development of Canadian shipping are our defective coasting laws. Norwegian and other ships, manned by crews which do not get half the wages which Canadian crews are paid, and which are provisioned for less than half what it

costs to feed a Canadian crew, are allowed coasting privileges in Canada, mainly carrying coal from Nova Scotia to Montreal, making it impossible to operate Canadian vessels in this trade, even if the ships could be purchased or built for less than the cost of the Norwegian ships. Again, United States vessels, whose coastwise trade is preserved to them, can virtually compete with Canadian vessels on equal terms on strictly Canadian business, as our coasting laws only forbid the carrying between two Canadian ports, and there is nothing to prevent them taking Canadian grain, which has been shipped from Winnipeg to Duluth, from Duluth to a Canadian port, whether it is designed for export or local consumption. On the other hand, United States grain, designed for United States consumption, cannot be carried from a United States port to a Canadian port in a Canadian vessel.

As regards ocean shipping and the talking of control of rates and government owned lines to compete with private enterprise, a study of the policy of Great Britain in this respect on the one side and that of the United States on the other well illustrates the two methods of dealing with shipping. In Great Britain the greatest freedom possible is allowed in the operating of their vessels. Practically the only Government interference in normal times is that necessary to see that ships are properly equipped for the safety of human life. The United States, on the contrary, by tariff imposts and absurd restrictions regarding crews—which have reached their climax apparently in the present U. S. Seamen's Bill—has practically put United States sea going shipping off the ocean, leaving them practically nothing but their coastwise shipping on the Atlantic and Pacific coasts and the Great Lakes, while Great Britain controls over two thirds of the foreign-going shipping of the world.

The policy of individual freedom which in the past has built up Canadian vessel capacity on the inland waters would do the same one the ocean, as it is only a question of giving Canadian owners an equal chance with their competitors. I am certain that any change in the way of the Government attempting to control rates, or operating, will kill off both, and leave this country at the mercy of foreign shipping. Under wise fostering plans Canada has, I am convinced, a wonderful future ahead of her on the water. But if we are to do justice to ourselves in this respect, we must largely follow the model which has made the people of Great Britain the greatest maritime nation in the world.—By-Water Magazine.

The gross registered tonnage of a vessel is arrived at by ascertaining the total internal capacity in cubic feet below the upper deck and in all enclosed spaces or deck houses above it, and dividing the result by 100; for example, 1,450,000 cubic feet divided by 100 equals 14,500 tons. At this gross registered tonnage, a vessel would at 19 ft. draught displace 19,650 tons; at 23 ft., 24,500 tons; at 30 ft., 28,550 tons. This is as a general thing, displacement tonnage being a variable quantity, depending on other factors than those mentioned.

It is reported that British shipyards at present have under construction 423 steel merchant vessels of about 1,423,335 tons, apart from handling all the Admiralty requirements. During 1915 there were launched throughout the world 743 merchant vessels with a tonnage of 1,201,638.

Car Ferry Service Between Port Maitland, Ont., and Ashtabula, Ohio.

The Interstate Commerce Association heard recently an application by the Michigan Central Rd., under the provisions of sec. 5 of the act to regulate commerce, as amended by the Panama Canal Act, in connection with the establishment of a car ferry service between Port Maitland, Ont., and Ashtabula, Ohio. It was urged that by reason of the interownership of the stock existing between the several railways involved in the application, which furnish an all rail route between the ports mentioned through which through rates are applicable, it is possible for the petitioner as a party to such through routes to compete with the proposed car ferry line in which it will have an interest within the meaning of the act; and upon the facts of record the proposed service will be in the public interest and of advantage to the convenience and commerce of the people, and will neither exclude, prevent nor reduce competition on the route by water if properly operated.

The Commission in its judgment stated that the Toronto, Hamilton & Buffalo Ry., a subsidiary of the applicant, has purchased a car ferry with capacity for 30 loaded freight cars of 50 tons each, at a cost of \$385,000. This railway is extending its line from Dunnville to Port Maitland, Ont., where slip docks are under construction. This extension of the dock facilities will be completed in July, 1916, and the car ferry will be delivered by its builders at about the same time. It is desired to institute the car ferry service between the T. H. & B. R. and the New York Central Rd., via Port Maitland and Ashtabula. A corporation will be organized under the laws of the State of Ohio, which will take over and operate the car ferry. All the stock of this corporation will be owned or held in the interest of the T. H. & B. R. The M. C. R. holds 17.9% of the T. H. & B. R. stock; 17.9% is held by the Canada Southern Ry. Co. and the petitioner in turn owns 51% of the Canada Southern Ry. stock; 27.1% is held by the New York Central, which also owns approximately 90% of the M. C. R. stock.

The T. H. & B. R. connects with the M. C. R. at Welland, and the latter has a line extending from Welland to Buffalo. The T. H. & B. R. publishes joint through rates from points on its line to destinations on the N. Y. C. via the all rail route indicated. The petitioner, as a party to this through route, participates in the joint rates so published. There is, therefore a possibility of competition established between the interested railways and the boat line which they seek to inaugurate. It appears, however, that the car ferry service proposed will greatly expedite the movement of freight from points adjacent to the south and north banks of Lake Erie and the territory tributary thereto, and relieve by so much the congestion at the Niagara frontier. Under normal conditions it is shown that it takes at least three days to get freight cars through the Buffalo terminals and a further delay is encountered in getting across the International Bridge, which is a one track structure, furnishing the only channel of rail transportation in that locality between the U. S. and Canada, and is, therefore, in great demand for passenger as well as freight traffic. The transportation of freight between the two ports all rail under the most favorable

conditions can only be accomplished in 6 or 7 days, whereas via the proposed car ferry service the maximum time required will be 8 hours. The cost of the service by ferry, it is said, will be less than half the cost by rail. While the ferry will use the N. Y. C. R. docks at Ashtabula, it will not be under exclusive contract with that road and is open to arrangement with any other road at that port desiring to use its across-lake service for the purpose of getting traffic up to Port Maitland. Since this is a new service it could not be said that in its inauguration it would have the effect of excluding, preventing, or reducing competition, but these ends might be accomplished by improper methods of operation. This contingency is within the purview of the act and if such a result should be effected, the attention of the Commission may be directed thereto upon subsequent proceedings.

From a consideration of the facts and circumstances here shown the Commission is of opinion and finds that the proposed specified service by water will be in the interest of the public and of advantage to the convenience and commerce of the people, and that it will neither exclude, prevent, nor reduce competition on the route by water under consideration, if properly operated. The corporation to be organized for the purpose of operating the car ferry service will be expected to file its tariffs stating its charges for the service which it holds itself out to the public to perform. These tariffs should be filed in accordance with the provisions of the act to become effective not less than five days after such filing. It is therefore ordered that the application of the Michigan Central Rd. for authority to institute and operate such car ferry service, is granted, subject to such further orders as may hereafter be entered by the Commission, and that the rates, fares, schedules, and regulations to be applied to the movements of such car ferry service when operated shall be established by Aug. 1, 1916, upon notice to the Commission and to the general public by not less than five days filing and posting in the manner prescribed in sec. 6 of the act to regulate commerce.

English Channel Tunnel. The British Prime Minister was asked recently to grant a day for discussing a resolution to the effect that in the opinion of the House of Commons the progress of the war has demonstrated the great advantages which would have accrued to Great Britain and the allied powers if a railway tunnel beneath the English Channel had been constructed and in operation, and that the time has arrived to support the proposal so that plans may be prepared and powers obtained to proceed with the work as soon as the war is over and the necessary labor available. The chief opposition to the scheme has always come from a certain section of the military, on fears which, throughout the war, have fortunately proved groundless.

A shipping employment registration office will be opened in Toronto shortly under the Dominion Marine Association's auspices. A small building is being erected on the water front for a sailors' institute, similar to those at Port Huron and Kingston, and the office will be located there.

AUGUST, 1916.]

The Loss of the s.s. Stormount Investigated

An investigation into the causes which led to the loss of the Montreal Transportation Co.'s s.s. Stormount at Gull Ledge, Marie Joseph Island, off the Nova Scotia coast, on June 20, was held at Halifax, N.S., June 27, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Commander E. Wyatt, R.N.R., and Lieutenant-Commander G. C. Hallaway, R.N.R., as nautical assessors. The evidence showed the Stormount left Philadelphia June 15, for Sydney, N.S., where she was to be handed over to the Dominion Coal Co. She was equipped with the necessary navigating instruments. No deviation book was kept, and the master stated that he never looked at the log book nor signed it. He also stated that he met so many fishing boats that he had no time to devote to a more accurate navigation of his vessel, he was going at times half speed to slow, and did not refer to the sailing directions frequently, and did not take any soundings, all distances being guesses. When the vessel struck, there was a dense fog and the helm was put to port and the engines ordered full speed astern. Boats were at once put over, but no soundings were taken, as he claimed it would have been useless and no effort of any kind was made to ascertain if it was possible to extricate the vessel from her position. The master was on deck all the time from leaving Philadelphia. The second mate, who holds an inland waters master's certificate, claimed to have no responsibilities in regard to the navigation of the vessel, and the first officer, who has a mate's certificate for passenger vessels in the coasting trade, stated that he assisted the master in navigating the vessel, but never laid courses, kept a deviation book, nor took observations, but merely steered the courses given him by the master. He could not account for an erasure in the log book, nor did he know what had been written there, and was unaware what orders were given to the engine room after the vessel struck.

The court found that the master ignored ordinary precautions and steered too fine a course without making allow-

ances for the elements which were tending to bring his vessel inshore. The court could not understand how the vessel was brought as far as it was without striking some of the other reefs in the vicinity in a southerly direction. The evidence showed that a "rule of thumb" system prevailed on board, and though the log book showed that some observations were taken to ascertain the errors of the compass, they were not numerous, nor frequent enough for safe navigation. The court commented on the fact that the master only seemed to have assumed the navigation of the vessel and did not insist on his officers making themselves acquainted with the courses, compasses, etc., keeping them on the bridge simply as lookout men, therefore in view of the circumstances, including the fact that the vessel may become a total loss, and the careless manner in which it was navigated, the court suspended the certificate of the master, W. H. Blackler, No. 318, of the Newfoundland, for the remainder of the year. Regarding the first mate, G. R. Parsons, the court was astonished at his apparent lack of ambition to perfect himself in his profession. The chief officer must bear in mind that in the event of the master becoming ill or disabled he would be called upon to replace him and assume responsibility, but in this case he would be unequal to the task and would establish a danger to property and be detrimental to the reputation of the coast. He was therefore cautioned to waken to his responsibilities if he wishes to meet with any success in his vocation.

The permitted draught of water through the St. Lawrence canals, has, on the Dominion Marine Association's representation been increased to 14 ft. 3 ins. until further notice. As stated in Canadian Railway and Marine World for July, the permitted draught of water through the Welland canal has been increased to 14 ft. 4 ins. on account of the prevalent high water levels.

Lights will not be shown from the gas beacons at Button Islands, Hatton headland, Wales island, Ashe inlet, Charles island, Nottingham island, Digges island, Mansel island, and Coats island, in Hudson Strait and Bay, during the current navigation season.

Water Pollution on the Great Lakes.

At a meeting of the International Joint Waterways Commission at Detroit, Mich., June 26, the Dominion Marine Association was represented by its Counsel, Francis King, M.A., Kingston, Ont., and the Lake Carriers' Association by Wm. Livingstone, President. The hearing was largely devoted to discussion of the plans prepared by Prof. Phelps, the Commission's sanitary expert, for taking care of the sewage of border municipalities, but special consideration was also given to his recommendation that steps should be taken without delay to settle and put in operation some method of preventing pollution by steamboats. Under instructions, and in accordance with statements made on behalf of the Dominion Marine Association at previous sessions the attitude of vessel owners was shown to be one of cheerful willingness to comply with any reasonable requirements enacted by legislation on the advice of the Commission, provided that any device, appliance, or method proposed be first carefully and exhaustively tested in all weather conditions and for all types of boats. It was urged that such experiment is possible at small expense and that as pollution from this source is infinitesimal compared with that from land and as it may take 5 to 10 years to deal satisfactorily with land sewage systems, no undue haste should be permitted in making rules for lake vessels. The Commission apparently intends to proceed in the way suggested. L. C. Frank, Sanitary Engineer, U. S. Public Health Service, Washington, D.C., gave evidence regarding an appliance already experimented upon in the Navy Yard there, and now just installed on the s.s. D. G. Kerr at Cleveland. It consists of a small tank or sewage receptacle, the contents of which are sterilized, and automatically discharged at intervals, by the action of live steam from the ship's boilers. The cost of installation is said to be moderate and the cost of operation quite negligible. He will make several trips on the vessel and the appliance will be tried throughout the season. Similar tests will be made on vessels of other types, and experiments with this and other devices will be continued until one can be safely selected that will provide maximum efficiency at minimum cost.

Saulte Ste. Marie Canals Traffic.

The following commerce passed through the Saulte Ste. Marie Canals during June.

ARTICLES	CANADIAN CANAL	U. S. CANAL	TOTAL
Copper..... Eastbound	700	16,684	17,384
Grain..... ..	5,180,888	5,120,526	10,301,414
Building stone..... ..	364,760	686,606	1,051,366
Flour..... ..	2,513,492	6,941,174	9,454,666
Iron ore..... ..	2,192	5,923	5,923
Pig iron..... ..	10,471,326	47,659	25,928,171
Lumber..... ..	11,935	15,456,845	19,227
Wheat..... ..	2,483	2,285	4,768
General merchandise..... ..			
Passengers..... ..			
Coal, hard..... Westbound	27,500	236,877	264,377
Coal, soft..... ..	120,200	1,670,847	1,791,047
Flour..... ..		910	910
Grain..... ..	3,628	16,525	20,153
Manufactured iron..... ..	3,584	2,047	5,631
Iron ore..... ..	4,550	103,658	108,208
Salt..... ..	43,822	160,011	203,873
General merchandise..... ..	2,302	1,754	4,056
Passengers..... ..			
SUMMARY			
Vessel passages..... .. Number	1,037	2,647	3,684
Registered tonnage..... .. Net	2,229,043	7,777,476	10,006,519
Freight—Eastbound..... .. Short tons	2,975,555	7,683,619	10,659,174
—Westbound..... ..	199,424	2,101,871	2,301,295
Total freight..... ..	3,174,979	9,785,490	12,960,469

The St. John Dry Dock and Shipbuilding Co., the incorporation of which was mentioned in our last issue, will probably, when organized, take over the contract for improvement work in Courtenay Bay, held by the Norton Griffiths Construction Co., and upon which a considerable amount of work has been done. The contract, which was awarded in 1912, provides for a 4,600 ft. breakwater, 9,900 lin. ft. of quay walls, a dreadnought dry dock 1,000 ft. long, and the reclamation of large tracts of land. The value of the contract was estimated at \$13,000,000. Among those interested in the company are Senator W. H. Thorne, G. McAvity, J. E. Moore and W. B. Tennant, St. John, N.B.

Baldry, Yerburgh, & Hutchinson, Ltd., has been incorporated under the Ontario Companies Act, with \$561,000 capital and office at St. Catharines, to carry on a general dock, railway and canal contracting business. The parent company is an English one, and was awarded a contract for one of the sections of the Welland Ship Canal, which will be taken over by the new company. G. Peterson, St. Catharines, is the company's attorney.

Atlantic and Pacific Ocean Marine.

Furness Withy & Co. assumed possession of the Dock St. municipal pier at Philadelphia, Pa., July 2, for loading outward cargoes. The company has obtained the pier under a lease at a rental of \$19,000 a year.

Canadian Pacific Ocean Services Ltd., has resumed the Montreal-Bristol steamship service which was operated for several years prior to the war, by the C.P.R. The steamships Hackness, Medora, and Montford as on the route.

The New Zealand Shipping Co., which has been operating a line of steamships from Montreal to New Zealand and Australia, for some time, is reported to have been absorbed by the Peninsular and Oriental Steam Navigation Co., a British concern with connections in various parts of the world. The shares of the New Zealand Shipping Co., with a face value of £10, are being exchanged for P. & O. N. Co.'s £10 deferred shares. The present market values of these stocks are given as £32 and £33 each respectively.

The s.s. Uranium, one of the vessels purchased recently by the Cunard Steamship Co., from Canadian Northern Steamships, Ltd., has had her name changed to Feltrie. She has been thoroughly overhauled and refitted. It is stated that the double bottom has been rebuilt, a new engine and boiler room made, and the whole machinery taken out, repaired, and brought up to date, and the whole of the internal furnishings completely remodelled. The s.s. Principello, another of the Canadian Northern vessels purchased by the Cunard Co., has had her name changed to Folia.

Maritime Provinces and Newfoundland.

A steamship service has been inaugurated between St. John's, Nfld., and St. Pierre, Miquelon and North Sydney, N.S., by the s.s. Pro Patria.

La Cie Francaise des Cables Telegraphiques has deposited with the Public Works Department, Ottawa, plans of a wharf to be built at North Dartmouth, in Halifax Harbor, N.S.

The Reid Newfoundland Co. is operating the steamships Meigle and Sagona, between St. John's, Nfld., and Labrador, this year, on a fortnightly schedule, calling at all the fishing ports between Battle Harbor and Nain. The trip takes from 12 to 15 days.

It is reported that the Newfoundland shipping industries have purchased about 30 sailing vessels of a tonnage from 150 to 200 tons, in the United States. Some of these are being fitted with auxiliary power and will be used chiefly for the fish and coal carrying trade.

The Dominion Government has presented engraved watches to the crew of the United States fishing schooner Josie and Phoebe, for rescuing the crew of the schooner Harry off Cape Sable on May 28, when the sailors had been 72 hours without food and water.

The Newfoundland s.s. Kite is reported to have sailed from St. John's to New York, where she will be dry-docked, overhauled, and refitted for an exploration trip to Baffin's Land, which is being arranged by a party in the United States.

It is reported that a Toronto company is trying to arrange a steamship service between Montreal, Quebec, Nova Scotia, Prince Edward Island, and Newfoundland ports. Vessels with accommodation for

130 first class passengers and 2,000 tons of cargo will, it is said, be used, and guarantees as to cargoes from merchants in the different places are being asked for.

Province of Quebec Marine.

An investigation into the causes of the stranding of the s.s. Arachine on Little Miquelon Island, was opened at Quebec, July 19, by Capt. L. A. Demers, Dominion Wreck Commissioner.

The Public Works Department received tenders to July 20, for dredging the River St. Maurice at Three Rivers, and to July 21, for extensions to wharf at Chandler.

The sluice walls of the waste water weirs of the Lachine Canal collapsed, July 15, causing considerable damage, apart from delaying traffic through the canal.

The Three Rivers council is offering to provide free sites, with exemption from taxation, and other inducements, to shipbuilders who are prepared to erect plants in the city.

An order in council has been passed approving the Montreal Harbor Commissioners' bylaw 96, governing the movement of cars, trains, and locomotives on the Commissioners' tracks.

Press reports state that one of the old shipbuilding yards at St. Laurent, Isle of Orleans, is being prepared for operation, and that keels of two sailing vessels will be laid there shortly.

The Chatham Steamship Co. Ltd., incorporated recently, with office at Quebec, together with five other companies, Colin W. Ltd., Howard W. Ltd., Marian W. Ltd., Richard W. Ltd., and Stuart W. Ltd., each owning one vessel, were organized in the interest of the Canadian Import Co. L. C. Webster is President, W. Q. Stobo, Vice President, and H. C. Thorn, Treasurer, all of Quebec.

Ontario and the Great Lakes.

The name of the s.s. Panther, purchased recently by the Davidson & Smith Elevator Co., registered as owned by J. R. Smith, Port Arthur, has been changed to Staples.

The Toronto Harbor Commissioners have deposited plans of a railway bridge to be built across the River Don, on the roadway under construction through the industrial district.

The name of the steamboat Alert, owned by D. B. McAulay, Southampton, Ont., has been changed to Douglass M. There are on the Canadian register 10 steamboats named Alert.

A press report states that a company has been formed at Owen Sound to operate a passenger steamboat between Owen Sound and Collingwood, calling at Meaford, during the summer.

The s.s. C. W. Hutchinson, which was raised recently after being sunk in collision at Sault Ste. Marie, while being towed to Cleveland, Ohio, July 10, sank in Lake Huron. It is expected that one of the temporary patches gave way and she filled.

The Toronto City Council has authorized the guaranteeing of \$1,500,000 of Toronto Harbor Commission's bonds, additional to the \$5,000,000 already guaranteed. The proceeds will be used on continuing the improvement works already in progress.

Work was commenced early in July on the crib and concrete head wall on the harbor improvement works between John St. and Spadina Ave., Toronto, and also

on the section between Bathurst St. and Spadina Ave. The contractors in the first case are the J. E. Russell Contracting Co., Toronto, and in the second, R. Weddell Co., Trenton, Ont.

The Montreal Transportation Co.'s barges Burma and Quebec, which went ashore in the Rapide Plat channel near Morrisburg, at the end of June, were released during July, after having had about 28,000 bush. of grain removed.

The schooner Charlie Marshall, owned in Cobourg, was reported to have sprung a leak off Gaspé Head, July 14, and to be in a sinking condition and dangerous to navigation. She had a cargo of coal on board. The vessel was abandoned by the crew.

The s.s. G. R. Crowe, owned formerly by the St. Lawrence and Chicago Steam Navigation Co., Toronto, and acquired recently by A. B. Mackay, Hamilton, Ont., and sold for salt water services in Europe, was cut in two at the end of June to allow her to pass the canals, and was rejoined at Levis, Que., prior to proceeding to England. She was built at Collingwood, Ont., in 1910.

The North Bay & French River Navigation Co., Ltd., which was incorporated recently, with office at North Bay, is operating the s.s. Northern Belle, formerly owned by the Lake Nipissing Shipping and Transportation Co., Sturgeon Falls, Ont. The route is between North Bay and French River. The capital of the company is \$10,000, of which about half has been subscribed. E. L. Banner is President and Managing Director, and H. S. Campbell is Secretary-Treasurer.

Dredging is being carried on in Toronto harbor, and the contractors, Canadian Stewart Co., have been given permission to carry a pipe line across the new western entrance channel, and to maintain it there for the current navigation season, except during August, when the channel is to be kept clear for the heavy tourist traffic. The new western channel will be closed to navigation after Aug. 31, with the exception of such days as weather conditions prevent the use of the eastern channel. In the latter event, the pipe line will be temporarily broken, the harbor master deciding when this is necessary. The line will be kept well lighted at night.

The United States Lake Survey reports the levels of the Great Lakes in feet above mean sea level for June, as follows:—Superior 603.48; Michigan and Huron 580.94; Erie 573.26; Ontario 247.86. Compared with the average June levels for the past ten years, Superior was 1.28 ft. above; Michigan and Huron 0.12 ft. above; Erie 0.41 ft. above, and Ontario 0.96 ft. above. According to investigations of engineers of the Department of Railways and Canals, the June level of Lake Ontario was at the highest point since June, 1870, registering 0.77 ft. below that record. The June level was 0.73 ft. above that of May, and was 2.71 ft. above the June 1915 level.

Elsewhere in this issue is given the judgment of the Interstate Commerce Commission in connection with the operation of a car ferry service to connect the Toronto, Hamilton & Buffalo Ry. at Port Maitland, Ont., with the Michigan Central Rd., at Ashtabula, Ohio. The vessel has been built by the Great Lakes Engineering Works, Detroit, Mich., and has been named Maitland No. 1. She is entirely of steel, and of the latest type of construction for vessels of this type. She is 300 ft. long, with capacity for 2,000 tons (32 cars), and has a loaded draught

of 15 ft. and a speed of 15 miles an hour. The Port Huron and Duluth Steamship Co., which operates four vessels between Point Edward, Ont., and Duluth, Minn., has changed its name to the North-Western Steamship Co., and it is announced that additional vessels will be placed on the route.

Manitoba, Saskatchewan and Alberta.

The Hudson's Bay Co. is operating steamboats between Peace River Crossing and Hudson Hope, and between Port Vermilion and Vermilion Chutes. It also runs the s.s. Fort McMurray between Peace River Crossing and the Chutes and Smith's Landing, and between Smith's Landing and McMurray. These vessels are not run on a regular schedule, but leave whenever sufficient cargo has been secured.

The Peace River Tramway and Navigation Co.'s s.s. D. A. Thomas, an illustration of which is given on this page, completed her first trip of 660 miles from Peace River Crossing to Vermilion Chutes and return, towards the end of June, the trip occupying 3 days and 9 hours, including all stops and the reload-

that they will leave Prince Rupert on Wednesdays at 12 noon and arrive at Skagway on Friday mornings to connect with the White Pass and Yukon Ry. trains leaving there at 9.30 a.m. They will then leave Skagway on the arrival of the W. P. & Y. R. trains on Saturdays at 7 p.m. It is also the intention to make the trip to Taku Glacier, either up or down, at the discretion of the captain, according to the available time.

The British Columbia Merchant Marine, which was incorporated recently under the British Columbia Companies Act, to promote the building and operating of steam and other vessels within, and from the province, is not to proceed with its organization. We are advised that as the B.C. Government has provided for the encouragement of shipbuilding and operation in a recent act, and a number of private concerns have already taken advantage of its terms, the objects for which the association was formed have been accomplished, and the directors decided that it was not necessary to proceed further.

An investigation into the causes of the stranding of the Harrison Line s.s. Barrister in Active Pass, was held at Victoria, July 3. The master of the vessel stated that he shaped the vessel's course

Mainly About Marine People.

John R. Shaw, heretofore in the Passenger Department, Manila, has been appointed General Agent, Passenger Department, Canadian Pacific Ocean Services, Ltd., Shanghai, China, vice A. J. Blaisdell, deceased.

H. J. Cox, who was appointed assistant to the Chief Surveyor of Lloyd's Register for the United States and Canada, recently, has been engaged since 1915 on the Chief Surveyor's staff in New York, and prior to that year, had held a similar position on the Chief Surveyor's staff in London, England.

Sir Montagu Allan, of Montreal, formerly of the Allan Steamship Line Co., and Lady Allan, who have been in England since the Lusitania disaster, have taken Admiral Keppel's house at Ascot for the summer. Sir Montagu is still engaged with the Pensions Board work at Bath.

G. L. Courtney, formerly General Agent, C.P.R., Victoria, B.C., and latterly a partner in Greer, Courtney and Skene, Ltd., shipping agents, at various points in B.C., has been appointed to a position in the freight department Canadian Pacific Ocean Services, Ltd., Hong Kong, China. He left Vancouver for China early in July.

Robert C. Manson, heretofore Traffic Manager, Canadian Fairbanks Morse Co., has been appointed Soliciting Freight Agent for the eastern section of Montreal, Canada Steamship Lines Ltd., vice T. H. Meehan, resigned to accept other service. Prior to his present appointment, he occupied the positions of Travelling Freight Agent, and chief clerk to District Freight Agent, G.T.R., Montreal, consecutively.

T. H. Meehan, until recently Soliciting Freight Agent, Canada Steamship Lines, Ltd., eastern section, Montreal, is reported to have been appointed Managing Director, T. D. Downing Co., foreign freight contractors and customs brokers, of New York, Boston, and Philadelphia. He entered transportation service with the C.P.R. as an office boy, and was, later on, in G.T.R. service, in the local, divisional, and general freight departments, consecutively, and was subsequently appointed travelling tariff inspector. He resigned from railway service to enter the Richelieu & Ontario Navigation Co.'s service in 1910.

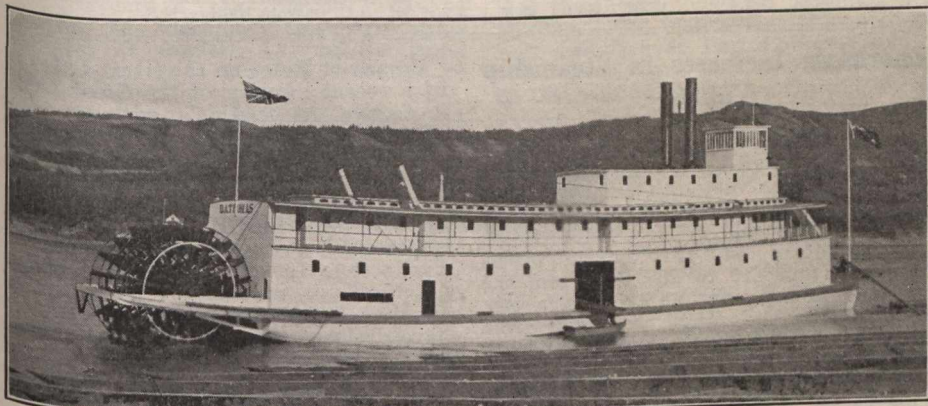
Canada Steamship Lines Notes.

The s.s. W. Grant Morden carried a cargo of grain from Fort William to Port McNicoll, during July, of 490,725 bush., which is claimed to be a record one.

The s.s. Wahcondah, which was fitted out for ocean service recently has loaded a cargo of deals, consigned to Liverpool, England. After delivery of these, she will be used in service between Great Britain and France.

The motor vessel Fordonian, which is being fitted out for salt water service, at Collingwood, is to enter Quebec Steamship Co.'s service between New York and the West Indies, to the regular trading ports on this subsidiary company's division.

The s.s. W. C. Moreland, which is being rebuilt at Duluth, Minn., after having been salvaged, was inspected by James Caruthers, President, Canada Steamship Lines, Ltd., July 18. The after part was all that was salvaged, and this is being fitted with a new fore part. She was wrecked on the Saw Tooth reef in Lake Superior in 1912.



Steamship D. A. Thomas, Peace River Tramway & Navigation Company.

ing at the northern terminus. This vessel was laid down at Peace River Crossing in Aug. 1915, and was launched at the end of May this year. She is 170 ft. long by 40 ft. beam, and carries two 25 ton boilers capable of developing 1,000 h.p. Her nominal freight load is 300 tons, and she has been specially designed to push scows carrying a further 2,000 tons. There is passenger accommodation for 250 persons. The vessel contains over 40 staterooms, dining-room with seating accommodation for 100 persons, smoke room, ladies' cabin, baths, etc., and is equipped throughout with electric light and all modern conveniences. She is working on a weekly schedule, leaving Peace River every week for Vermilion Chutes, 330 miles, and Hudson's Hope, 280 miles, alternately, making the round trip in each case in four or five days. Arthur Sutcliffe is Transportation Manager, at Peace River, Alta.

British Columbia and Pacific Coast.

It is reported that five keels have been laid at Vancouver, three at Victoria, and two at New Westminster, of vessels to sail to Europe by way of the Panama Canal.

The Grand Trunk Pacific Coast Steamship Co. has altered its summer schedule for its vessels north of Prince Rupert, so

before reaching Active Pass, and as he was a stranger to the district, he accepted the pilot's assurance that Active Pass was a safe course, although he preferred the outer channel. The pilot, H. R. Jones, had signed a written statement, exonerating all the officers of the Barrister, and assuming full blame for the accident himself. He claimed however that the statement was made under duress. Judgment was reserved.

Tenders are being received for the purchase of the tug Sea Lion, formerly owned by the British Canadian Lumber Co., and at present under charter to the Young and Gore Tugboat Co., Vancouver, the charter expiring Apr. 16, 1917. She was built at Vancouver in 1905, her dimensions being, length 114 ft., breadth 22 ft., depth 19.5 ft., tonnage 218 gross, 148 register. She is equipped with triple expansion engine with cylinders 12, 20, and 32 ins. diam. by 24 ins. stroke, built in Glasgow, Scotland, and she is supplied with steam by a three furnace Scotch boiler at 180 lbs. She is fully equipped with electric lights and an electric searchlight.

Wreck Receivers.—R. Parsons and J. S. C. Watt, Managers, Hudson's Bay Co. at Lake Harbor and Fort Chimo, respectively, have been appointed by the Dominion Government as Receivers of Wrecks for Hudson Strait District.

List of Steam Vessels Registered in Canada During June, 1916.

No.	Name	Port of Registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
138108	Joyland (1)	Montreal	Detroit, Mich. 1884	250 5	37 0	14 3	1845	1070	887 1/2 sc.	Lake & River Transportation Co., Montreal.
138102	Kildala	Vancouver	Vancouver, B.C. 1916	58 9	14 3	6 3	44	30	10 sc.	Kildala Packing Co., Vancouver, B.C.
134019	Rbt. L. Fryer (2)	Port Arthur	West Bay City, Mich. 1888	281 0	41 5	20 0	2033	1158	129 1/2 sc.	J. L. Davidson, Standard Bank Bldg., Vancouver.
129531	Strathardle	Victoria	Dumbarton, G.B. 1910	376 5	52 2	25 5	4377	2823	366 sc.	Dollar Steamship Lines, Victoria, B.C.

(1) Formerly Wm. A. Haskell

(2) Recovered wreck

List of Sailing Vessels and Barges Registered in Canada During June, 1916.

No.	Name	Port of Registry	Rig	Where and When Built	Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
138241	A.H. Whitman	Lunenburg, N.S.	Schr.	Mahone Bay, N.S. 1916	97 6	25 0	10 0	94	F. Conrad, La Have, N.S.
137887	C.M. Walters	Vancouver, B.C.	"	Lunenburg, N.S. 1916	92 3	24 0	9 4	84	W.H. Walters, La Have, N.S.
138137	Crane Island	Quebec, Que.	"	Isle aux Grues, Que. 1915	67 0	24 2	6 6	57	J. B. Bernier, Isle aux Grues, Que.
97080	Edwin A. Grozier	Charlottetown, P.E.I.	"	Essex, Mass. 1862	68 0	20 8	7 4	60	C. Trenholm, Port Elgin, N.B.
122032	Florence Melanson	Weymouth, N.S.	"	Port Elgin, N.B. 1915					
137949	G. of G. No. 2	Vancouver, B.C.	"	Gilberts Cove, N.S. 1908	88 0	25 6	8 6	99	B.N. Melanson, Gilberts Cove, N.S.
137888	Grace Hilda	Lunenburg, N.S.	"	N. Vancouver, B.C. 1912	86 5	28 2	6 2	123	Gulf of Georgia Towing Co., Vancouver, B.C.
138201	Jane Cox	Shelburne, N.S.	"	La Have, N.S. 1916	75 8	23 5	9 6	83	J.N. Rafuse, La Have, N.S.
134188	Leconfield	St. John, N.B.	Dredge	Shelburne, N.S. 1916	97 7	24 6	10 1	94	G.A. Cox and J.J. Cox, Shelburne, N.S.
133894	Lillian H.	Parrsboro, N.S.	Schr.	Holland. 1913	154 6	26 5	9 8	333	E.O. Leahey, St. John, N.B.
137890	Lucille M. Colp	Lunenburg, N.S.	"	Port Greville, N.S. 1916	152 6	36 0	12 8	424	Lillian H. Shipping Co., Fox River, N.S.
138153	Pioneer S. & G. Co., No. 11	Vancouver, B.C.	Scow	Lunenburg, N.S. 1916	107 2	25 8	10 5	95	M. Colp, Lunenburg, N.S.
134637	Sadie No. 4	Victoria, B.C.	Barge	Seattle, Wash. 1911	133 7	40 0	12 6	645	Coastwise Steamship & Barge Co., Vancouver, B.C.
134638	Sadie No. 14	Victoria, B.C.	"	Victoria, B.C. 1913	90 0	32 0	8 0	183	Victoria Tug Co., Victoria, B.C.
138109	U. Paris	Montreal	Sloop	Eburne, B.C. 1912	83 6	32 0	7 5	164	
138110	Wayne	Montreal	Barge	Cape Magdalen, Que. 1916	101 7	23 3	6 6	103	U. Paris, Deschaillons, Que.
134466	Wm. Thos. Moore	Halifax, N.S.	Schr.	St. Clair, Mich. 1882	187 0	34 4	13 0	668	Canada Steamship Lines, Ltd., Montreal.
				Bethel, Del. 1902	140 0	28 4	9 2	307	H.C. DeWolf, Halifax, N.S.

Dock and Harbor Improvements at Port Dover, Ont.

A press dispatch of July 5, said:—"Port Dover's long deferred hope for better docking facilities is about to be realized. The Public Works Department at Ottawa has plans of proposed improvements, and Martin Todd, Manager of the L. E. & N. Ry. has made arrangements for a car ferry service across the lake if terminal facilities can be secured. A large deputation leaves for Ottawa to-day to interview the Minister of Public Works in the matter, amongst whom are M. Todd, Senator McCall, H. P. Innes, H. Ainsley, Capt. Robinson, John Fisher, M.L.A., W. Weichel, M.P., and F. S. Scott. It is hoped that the vote of \$50,000 to commence the work will be expended before the year is out."

M. N. Todd states that so far as the Lake Erie & Northern Ry. is concerned, the question as to what point on the U. S. side the proposed car ferry from Port Dover will run, when the required harbor improvements are carried out, and the question as to whether an existing car ferry will be made use of, or if a new vessel will be built, have not yet been discussed. There appears to be no doubt, however, that it is the company's intention to establish a car ferry service.

Quebec Harbor Commission.—In consequence of the resignation of Sir William Price, Chairman, Quebec Harbor Commissioners, and of J. B. Letellier, one of the commissioners, as previously announced, D. O. Lesperance, Quebec, has been appointed Chairman, and D. H. Pennington has been appointed commissioner, as from June 15. The third commissioner, A. S. Gravel, Levis, remains.

Canada West Coast Navigation Co., Ltd., has been incorporated under the Dominion Companies Act, with \$2,500,000 capital and office at Vancouver, B.C., to build, own and operate steam and other vessels, docks, wharves, warehouses, and other terminal facilities, and to carry on a general navigation business. The nominal incorporators are all connected with a Toronto legal firm.

Enormous Increases in Steamship Values.

The Liverpool Journal of Commerce, to illustrate the rise in shipping values, gives a selected list of steamships sold in May of this year and a corresponding list of vessels sold in May 1915. Ships disposed of in May 1915 fetched prices ranging from £10 to £37 9s a ton, the average working out at £20 12s. a ton. A year ago the range was only from £5 5s to £18 15s a ton, while the average was £7 12s a ton. Thus the mean value has jumped up in 12 months nearly 200%. One vessel just disposed of for £101,000 fetched £78,000 in January and £36,500 in Aug. 1915. Another now sold for £140,000 realized £100,000 last year and £26,200 in 1914, and a third, which has just fetched £62,000, was sold for £21,000 last year and for £7,800 in 1912. Four others, which were disposed of in 1915 for £177,000, have now been sold for £355,500.

Aliens as Commanders of British Vessels.—Press reports stated recently that orders had been issued forbidding the employment of men of alien birth, whether naturalized British subjects or not, in command of British steamships, but we have been officially advised that the Dominion Government has not issued such an order, nor is the Marine Department aware that such an order has been issued by the British Government. The Marine Department has instructed Canadian shipping owners that they should take all possible steps to ensure that no enemy subjects remain on board any British merchant vessel, no matter what her occupation and voyage.

Vessels Turning in the Rivers at Fort William.—A recent order in council requires all vessels desiring to turn when in the rivers at Fort William, to go into one of the turning basins for the purpose. The Dominion Marine Association has protested against the order on the ground that it works unnecessary hardship on canal sized vessels without corresponding advantage.

Breach of Rules on the Great Lakes.

At a recent meeting of the Great Lakes Protective Association's advisory committee the following resolution was adopted:—"Numerous reports of nonobservance of the outside courses downbound and inside courses upbound in Lakes Superior and Huron, make it highly necessary to take immediate and positive action to prevent this dangerous practice." A number of managers of member companies of the association have declared their intention to suspend for 30 days without pay, the master of any vessel in their fleets for failure to adopt and follow such courses, and necessary means for reporting such cases have been adopted.

Power Development on the St. Lawrence River. The Beauharnois Light, Heat and Power Co. is applying for approval of plans for power development on a large scale, and the Dominion Marine Association has filed objections and made request for an opportunity to examine the plans and express an opinion thereon before any action is taken. It is stated that the proposed works would seriously affect the levels of water in Lake St. Francis. These proposals are not connected with the Canadian Light, Heat & Power Co.'s works in the Beauharnois canal. The Minister of Public Works has given assurance that the Dominion Marine Association will be given an opportunity to examine the proposal before any action

Shipbuilding in Canada.—Various rumors are current in Montreal as to early future developments in the Canadian shipbuilding trade, and a number of British firms are spoken of as considering the question of starting yards in the Dominion. Some few years ago, when it was considered probable that the Government would order the construction of some war vessels, several of the larger shipbuilders in Great Britain had such a move in view, but as the suggested Government programme did not materialize most of the projects were dropped. However, two British firms did open plants in the Dominion, viz., Canadian Vickers Ltd., at Maisonneuve, Que., and Yarrows, Ltd., at Esquimalt, B.C.

New Steamship for Great Lakes Transportation Company.

The Great Lakes Transportation Co., Midland, Ont., of which James Playfair is President and General Manager, has ordered a steel freight steamship from Thor Iron Works, Toronto. The keel will be laid during this month, and it is expected that the vessel will be launched early in the spring of 1917. The principal dimensions will be: length over all 261 ft., length between perpendiculars 251 ft., breadth moulded 43½ ft., depth moulded 28 ft. 2 in. She will be of the single deck type with poop, bridge and fore-castle, steel deckhouse on bridge and chart room on top of deckhouse with navigating bridge. The propelling machinery will be located amidships with coal bunkers in wings. There will be two large cargo holds with two hatches to each hold, one hold extending from the collision bulkhead to the boiler room bulkhead and the other from the engine room bulkhead to the after peak bulkhead, all made water tight and divided by water tight transverse floors into a suitable number of compartments. She will be built to Lloyd's specifications and to highest class of British Lloyd's ocean service, and equipped in accordance with the requirements of the British Board of Trade. The machinery space will equal as near as possible, 13% of the gross tonnage so as to attain a reduction of 32% from capacity tonnage.

The hull will be built with flat plate keel and bilge keels, the latter to extend for about 100 ft. amidships and to be of plate 9 ins. deep connected to shell with angle bars fitted on short lengths extending from butt to butt of shell, the plate to be continuous. There is to be a straight stem and elliptic stern, and channel frame is to be fitted extending from tank margin to main deck without hold stringers or 'tween deck beams. The propeller frame is to be of wrought iron or cast steel with sufficient bearing in boss for propeller tube, and the rudder post will extend to the main deck and be attached thereto with angles and deep transom plates. The rudder will be of the single plate type of wrought iron or cast steel, with arms alternately on the port and starboard sides. The hull will be divided into four water tight compartments, and a water tight sliding door will be fitted to the engine room bulkhead 36 ins. high by 21 ins. wide.

The propelling machinery will consist of triple expansion engine with surface condenser, built in type, with three cylinders each working on a separate crank at an angle of 120 degrees. The cylinders to be 20, 33, and 54 in. diam. with a common stroke of 40 in., with an average h.p. of 1,200 and a maximum of 1,300. Steam will be supplied by two Scotch boilers with return tubes, at a working pressure of 100 lbs. They will each be 14½ ft. inside diam. by 11 ft. long with interchangeable furnaces and heating surface of 5,250 sq. ft., with grate surface of 126 sq. ft., and equipped for natural draught. The machinery is being built by the John Inglis Co., Ltd., Toronto. The electrical installation will consist of one 7½ k.w. generator and complete lighting system, the sidelights being arranged for electric as well as oil light. In addition to the propelling machinery, there will be a complete system of pumps, capstans and the usual sundries, as well as all life saving apparatus and boats in accordance with the Dominion Government inspection rules.

The Loss of the Tug Frank C. Barnes.

An investigation into the loss of Canada Steamship Lines' tug, Frank C. Barnes, Nov. 2, 1915, in the neighborhood of Point Peter, Lake Ontario, when all hands were lost, was held at Toronto, July 5. The investigation was held at the request of a sister of the late engineer, on the ground that the vessel was unseaworthy when she left Port Colborne. The owners were represented by Francis King, M.A., Counsel for the Dominion Marine Association, and the enquiry was conducted by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. J. B. Foote and James McMaugh, as nautical assessors.

H. W. Cowan, Operating Manager, Canada Steamship Lines, stated that the equipment and general operations of vessels came under his supervision. In May, 1915, the Frank C. Barnes was purchased as an aid to other tugs for harbor work; but not needing the vessel for that season she was taken from Port Arthur to Port Colborne and tied to a dock until late in October, when Capt. Herbert LaRush, one of the most efficient masters in the company's service, was ordered to take her to Sorel, Que., where it was intended that she should undergo a thorough overhauling. The instructions issued to his representative at Port Colborne and to the master, were that the vessel was to be taken to Sorel, leaving the master absolutely free in choosing the date of departure, when weather conditions were favorable, and that there was no hurry in reaching Sorel. The company made it a point to leave these questions to the master who is the only man who should know when and how the vessel should be sailed. The general order to fit the vessel, which was issued to Capt. LaRush, included the clearing of the vessel at the customs house. With regard to the fact that the boat had not been officially inspected for two years, he stated that he was absolutely ignorant of that particular, as this was left to the master and the collector of customs. He assumed that when the tug was bought she carried the certificate of inspection, and that it was the master's duty to enquire, as his orders were to fit the vessel for the journey. Other evidence gave details of times at which the tug had been met and passed by other vessels, and also particulars of the weather conditions at the time, and none of it indicated that the tug was unseaworthy. The person at whose request the investigation was held, did not appear in person, and no witnesses were brought forward to substantiate her suppositions, or the rumors circulated. The court's judgment is summarized as follows:—

Notwithstanding the fact that the tug was old, and in need of repairs to her hull, there is nothing to show that Canada Steamship Lines, through its representatives, is in default for neglecting to take precautions to ensure the safety of the crew. The master was an able, intelligent, competent man, and in taking command of the tug to take her to Sorel he was left free to use his own judgment in navigating her. Since he left without remonstrating it shows that he did not apprehend any disaster through her possible unseaworthiness. In the absence of evidence on the crew's side, the court accepts the statements of the company's representatives, that the master requisitioned for articles needed for the trip, which were delivered without question.

As to the equipment and life saving appliances, it is said that there were at least one circular buoy and several life belts, one of which was found on the beach not far from the place where the engineer's body was recovered. There was also a metal life boat for which two oars were supplied before leaving Port Colborne. As there is no law governing the inspection of hulls of tug boats, the court cannot examine any official record, but must accept the statement given that the vessel needed repairs. While in dock from May to November she was not leaking to any extent, requiring only a little pumping once daily. On the day of the departure the weather appears to have been anything but threatening, but subsequently a fresh breeze sprang up from the westward, which increased in intensity, and the records show that on the morning the tug disappeared the wind had a velocity of 31 miles an hour, causing a heavy sea which forced the s.s. Se-guin to seek shelter.

A personal log found on the body of Capt. LaRush was produced, and the court failed to note any entry indicating doubts or apprehension on his part. The company, in verbally notifying the master to take his own time, and otherwise giving him a free hand as to the manner in which he was to take the tug to Sorel, relieved itself of any blame for this deplorable casualty. With regard to the state of the boilers, though the court has on its file a memo to the effect that no inspection of the boilers had been made for the last two years—which in itself is a violation of the statutes—this cannot be accepted as a factor in bringing about this disaster, for the following reason, that the chief engineer held a first class Board of Trade certificate as engineer, and when joining the tug, if anything defective had been found with the boilers or machinery, he would naturally have requisitioned for repairs; but no request of that nature appears to have been made, other than a requisition for oils, packing, and the usual engine room necessities for every voyage.

Therefore, analysing all the facts and reports which have been submitted, and in view of the weather conditions existing that morning, when larger vessels had to seek shelter, the court cannot arrive at any other conclusion than that either one of two causes could have brought about this disaster, either the tug shipped a sea over the stern, or she broached to, and while in the trough of the sea, capsized. These are the only two theories the court can advance. Consequently in view of such conclusion it holds both the owners of the tug, her master, Captain LaRush, and her engineer, A. McG. Cummings, blameless, and finds that this disaster can be attributed to unforeseen and unavoidable circumstances, in fact, to an act of God.

The court expresses its sincere sympathy with the relatives of those who unfortunately lost their lives on this vessel.

Among the Express Companies.

R. W. Burnham has been appointed acting agent, Canadian Northern Ex. Co., Brockville, Ont., vice A. F. Schussler.

The Canadian Northern Ex. Co. has opened offices at Huberdeau, Montfort, Morin Heights, Perthuis, St. Sauveur and 16 Island, Que.; Beachburg, Ont., and Alliance and Sangudo, Alta.

The Canadian Ex. Co. has opened offices at Juneau, Ketchikan and Skagway,

Alaska. The service is operated to Prince Rupert, B.C., over the Grand Trunk Pacific Ry., and thence by the Grand Trunk Pacific Coast Steamship Co.'s vessels.

R. Chambers, heretofore clerk, Dominion Ex. Co., Brandon, Man., has been appointed cashier at Swift Current, Sask.

The Dominion Express Co. has opened offices at Aldershot, N.S.; Beauchene, Que.; Castelford, Ont.; Elbor and Regent, Man.; and Antelope, Regina Beach and Willows, Sask.

The Canadian Northern Ex. Co. has established its service over the C.N.R. on the following routes:—between St. Jerome and Huberdeau, Que., superseding the Dominion Ex. Co.; between Ottawa and Pembroke, Ont.; between Winnipeg and Virginia Beach, Man.; between Melfort and St. Brieux, Sask., and between Peace River Jet. and Sangudo, Alta.

The Canadian Ex. Co. has opened offices at Hawkshaw, N.B.; Armagh, Damien, Fitzpatrick, St. Euphemie and Sanmaur, Que.; Falkenburg, Hudson and Quibel, Ont.; Smiley, Sask.; Spruce Grove, Alta., and Burns Lake, B.C., and has also reopened its summer offices at Elgin House, Muskoka Wharf, Port Carling, Rosseau and Windermere, Ont.

Telegraph, Telephone and Cable Matters.

M. B. Douglas, heretofore local manager, Great North Western Telegraph Co., St. Catharines, Ont., has been appointed local manager at North Bay, Ont., and has been succeeded at St. Catharines by John Frazell.

Four additional cables have been laid recently in Passamaquoddy Bay and the Bay of Fundy, N.B. The starting points of these cables is at Eastport, Me., and they connect at Deer Island, Grand Manan, and Campobello.

Edwin Pope, Superintendent of Dominion Government Telegraphs, Quebec, Que., was advised recently that his son, C. A. Pope, had been killed in action. A second son, H. B. Pope, has also been reported to have been killed in action.

The Great North Western Telegraph Co. is installing a Morkrum printing equipment on the line between Toronto and Chicago. Other circuits in operation are between Montreal and New York, Ottawa and Montreal, Toronto and Ottawa and Toronto and New York.

The annual report of the Marconi Wireless Telegraph Co., the parent concern, shows a net profit of £377,817, an increase of £145,000 over the previous year. The general reserve account stands at £967,530, and investments and temporary loans show an increase of £173,500.

The Western Union Telegraph Co. reports that for the six months ended June 30, the total revenue was \$29,125,269, an increase of \$4,909,562 over the same period in 1915. The total expenses were \$18,396,064 against \$15,550,540, and the balance \$6,846,677 against \$4,781,037. Deducting interest of \$665,825, the net income for the first half year of 1916 was \$6,180,752.

At the recent annual meeting of the Marconi International Marine Communication Co., in London, Eng., G. Isaacs, who presided, said that he was authorized to announce that in the very near future, Mr. Marconi would introduce a new, independent, and very simple apparatus, to be worked from the bridge of a vessel by an officer, which should put an end to

all danger of collision in darkness and fog.

The Dominion Telegraph Co.'s annual meeting was held at Toronto, July 12, when the report for the year ended June 30 showed total assets of \$1,310,762.28, and liabilities \$1,017,773.96, including dividend payable July 15, \$14,000. The company's property is leased to the Western Union Telegraph Co. for 99 years from July 1, 1879, and it receives a guaranteed interest of 6% a year, and this has been paid quarterly in advance for the past 37 years. Mention was made of the death during the year of Belvidere Brooks, one of the directors, and the election of G. W. E. Atkins of New York, to fill the vacancy. Following are the directors for the current year:—Sir Henry M. Pellatt, President; Aemilius Jarvis, Vice President; F. Roper, Secretary and Treasurer; G. W. E. Atkins, R. C. Clow-C. P. O'Reilly, and G. P. Schofield.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Du Pont Products.—A book with this title (111 pgs., 5 x 8 in.) has been issued, giving a list of 251 distinct commodities manufactured by the Du Pont industries, viz.:—E. I. Du Pont De Nemours & Co., Du Pont Fabrikoid Co., Du Pont Chemical Co., and the Arlington Co. at Wilmington, Del. Among the articles listed are a considerable number used by steam and electric railway and navigation companies, car and locomotive builders and contractors.

Roberts & Schaefer Co., engineers and contractors, Chicago, report the following orders. From Pennsylvania Rd., 300 ton capacity, 2-track, automatic electric counterbalanced bucket locomotive coaling station at Erie, Pa., also two Rands gravity sand plants, using the Beamer patent steam sand dryer. From Chicago, Rock Island & Pacific Ry., 2 Rands measuring coal loaders for recording locomotive coal. From Illinois Central Rd., for rebuilding a 600-ton capacity 3 track reinforced concrete locomotive coaling plant, at Effingham, Ill., using automatic electric elevating equipment and Rands silent traction hoist.

The Locomotive Superheater Co. reports that the oil tank s.s. Pearl Shell, launched recently at Wilmington, Del., for the Shell Oil Co., of San Francisco, is the first ship built in America to be equipped with fire tube superheaters. She is equipped with three Scotch marine boilers, fitted with Locomotive Superheater Co.'s fire tube superheater, supplying superheated steam to triple expansion engines developing 2,400 h.p. The superheaters were applied after the purchasers had satisfied themselves of the economy and reliability in operation, of a superheater of the same design applied to one of their existing steamships of approximately the same size. They have also ordered sufficient superheater equipment to convert five of their existing vessels. There are about 1,500 steamships, representing over 2,000,000 h.p., sailing from ports outside America which are equipped with fire tube superheaters.

Transportation Conventions in 1916.

- Aug. 15-17.—International Railroad Blacksmiths' Association, Chicago, Ill.
- Aug. 16 to 18.—American Association of Railroad Superintendents, Memphis, Tenn.
- Aug. 24-26.—American Railway Tool Foremen's Association, Chicago, Ill.
- August 29.—International Railway General Foremen's Association, Chicago, Ill.
- Sept. 5 to 8.—Traveling Engineers' Association, Chicago, Ill.
- Sept. 12-14.—Master Car and Locomotive Painters' Association of United States and Canada, Atlantic City, N.Y.
- Sept. 12-14.—Railway Signal Association, Mackinac Island, Mich.
- Sept. 19-22.—Roadmasters and Maintenance of Way Association, New York.
- October 3-5.—Railway Fire Protection Association, New York.
- Oct. 9-13.—American Electric Railway Association, Atlantic City, N.J.
- October 10.—Association of Manufacturers of Chilled Car Wheels, New York.
- Oct. 17, 18.—American Association of Passenger Traffic Officers, Washington, D.C.
- October 17-19.—American Railway Bridge and Building Association, New Orleans, La.
- October 17-19.—Maintenance of Way and Master Painters' Association of the United States and Canada, Philadelphia, Pa.
- Oct. 18-20.—Society of Railway Financial Officers, Washington, D.C.
- Oct. 19-21.—American Association of Dining Car Superintendents, New Orleans, La.

Transportation Associations, Clubs, Etc.

- The names of persons given below are those of the secretaries unless otherwise stated:
- Canadian Car Service Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.
 - Canadian Electric Railway Association—Acton Burrows, 70 Bond Street, Toronto.
 - Canadian Freight Association (Eastern lines)—G. C. Ransom, Canadian Express Building, Montreal.
 - Canadian Freight Association (Western lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.
 - Canadian Railway Club—J. Powell, St. Lambert, Que. Meetings at Montreal 2nd Tuesday each month, 8.30 p.m., except June, July and August.
 - Canadian Society of Civil Engineers—C. H. McLeod, 176 Mansfield St., Montreal.
 - Canadian Ticket Agents' Associations—E. de la Hooke, London, Ont.
 - Dominion Marine Association—F. King, Counsel, Kingston, Ont.
 - Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.
 - Engineers' Club of Montreal—R. W. H. Smith, 9 Beaver Hall Square, Montreal.
 - Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.
 - Express Traffic Association of Canada—W. H. Burr, Chairman, Toronto.
 - Great Lakes and St. Lawrence River Rate Committee—James Morrison, Montreal.
 - Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.
 - International Water Lines Passenger Association—M. R. Nelson, New York.
 - Niagara Frontier Summer Rate Committee—James Morrison, Montreal.
 - Nova Scotia Society of Engineers—A. R. McCleave, Halifax, N.S.
 - Quebec Transportation Club—A. F. Dion, Quebec.
 - Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.
 - Ship Masters' Association of Canada—Capt. E. Wells, 45 St. John Street, Halifax, N.S.
 - Toronto Transportation Club—W. A. Gray, 143 Yonge Street, Toronto.
 - Transportation Club of Vancouver—H. W. Schofield, 553 Granville St., Vancouver, B.C.
 - Twin Cities Local Freight Agents' Association—E. J. Travers, Fort William, Ont.
 - Western Canada Railway Club—Louis Kon, Box 1707 Winnipeg. Meetings at Winnipeg 2nd Monday each month, except June, July and August.
 - Winnipeg Traffic Club—James Gehrev, Bannatyne Avenue, Winnipeg, Man.

Railway Lands Patented.—Letters patent were issued during June, in respect of Dominion railway lands in Manitoba, Saskatchewan, Alberta, and British Columbia, as follows:—

Alberta & Great Waterways Ry.	7.28
Calgary & Edmonton Ry.	3,504.00
Canadian Northern Ry.	320.00
Canadian Pacific Ry.	244.49
Grand Trunk Pacific Branch Lines Co.	12.39
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.	3,805.02
Total	7,893.18